



LAND RIGS

CATALOG



DRILLMEC
DRILLING TECHNOLOGIES

LAND RIG

land based rigs

MASSARENTI - BRANHAM design

Drillmec produces a full range of LAND RIGS and has been supplying packages that are successfully operating in all major oilfields in the world.

Thanks to its rooted experience in rig manufacturing since 1922, DRILLMEC is now offering a big range of rigs with a wide choice of configurations and various solutions to suit each customer needs. DRILLMEC land rigs come in two different mast and substructure configurations:

- RAPID
- SWING LIFT

RAPID (RAPID Series)

The Rapid masts and substructures can have a hook load capacity up to 2.000.000 lbs and they give the operator a wide space on the working floor and around the drawworks. In addition their compact and solid design allows a fast and safe Rig-up/Rig-down.

SWING LIFT (DM Series)

The SWING LIFT masts and substructures can have a hook load capacity from 650.000 to 2.500.000 lbs. They are designed to allow a fast Rig-up/Rig-down with limited stress on drawworks.

RAPID & SWING LIFT rig features:

- Simple structure consisting of four major components that can be easily erected by a gin pole truck (no crane is needed).
- Four point mast leveling system built into mast legs above drilling floor.
- Elimination of structural vibrations.
- Reduction of the number of truck loads.
- Visibility and safety of operation increased thanks to the truss-type portal construction that eliminates internal bracing.
- Mud collecting and discarding system mounted under the drill floor to minimize environmental impact.
- Possibility to prearrange the mast with top drive guide supports and umbilical.

In point of fact, DRILLMEC's R&D dep. continuously reaches new solutions in both drilling and manufacturing in order to improve rig capacity, moving, safety and operability all for a good performance optimisation while minimizing impact of environment.

RAPID Type masts and substructures

technical data

| Model | hook load | | lines to TB | setback load capacity m | drawworks input power HP | mast height | | substructure height up to: | |
|-------------------|-----------|-----|-------------|----------------------------|-----------------------------|-------------|------|----------------------------|----|
| | lbs | mt | | | | ft | m | m | ft |
| RAPID 500 | 550,000 | 250 | 10 | 175 | 1000 | 136 | 41,5 | 7,6 | 25 |
| RAPID 1000 | 1,000,000 | 450 | 12 | 272 | 2000 | 152 | 46,3 | 9,1 | 30 |
| RAPID 1500 | 1,500,000 | 680 | 14 | 317 | 2500 | 152 | 46,3 | 12,9 | 40 |
| RAPID 2000 | 2,000,000 | 910 | 16 | 453 | 3000 | 160 | 48,7 | 12,9 | 40 |

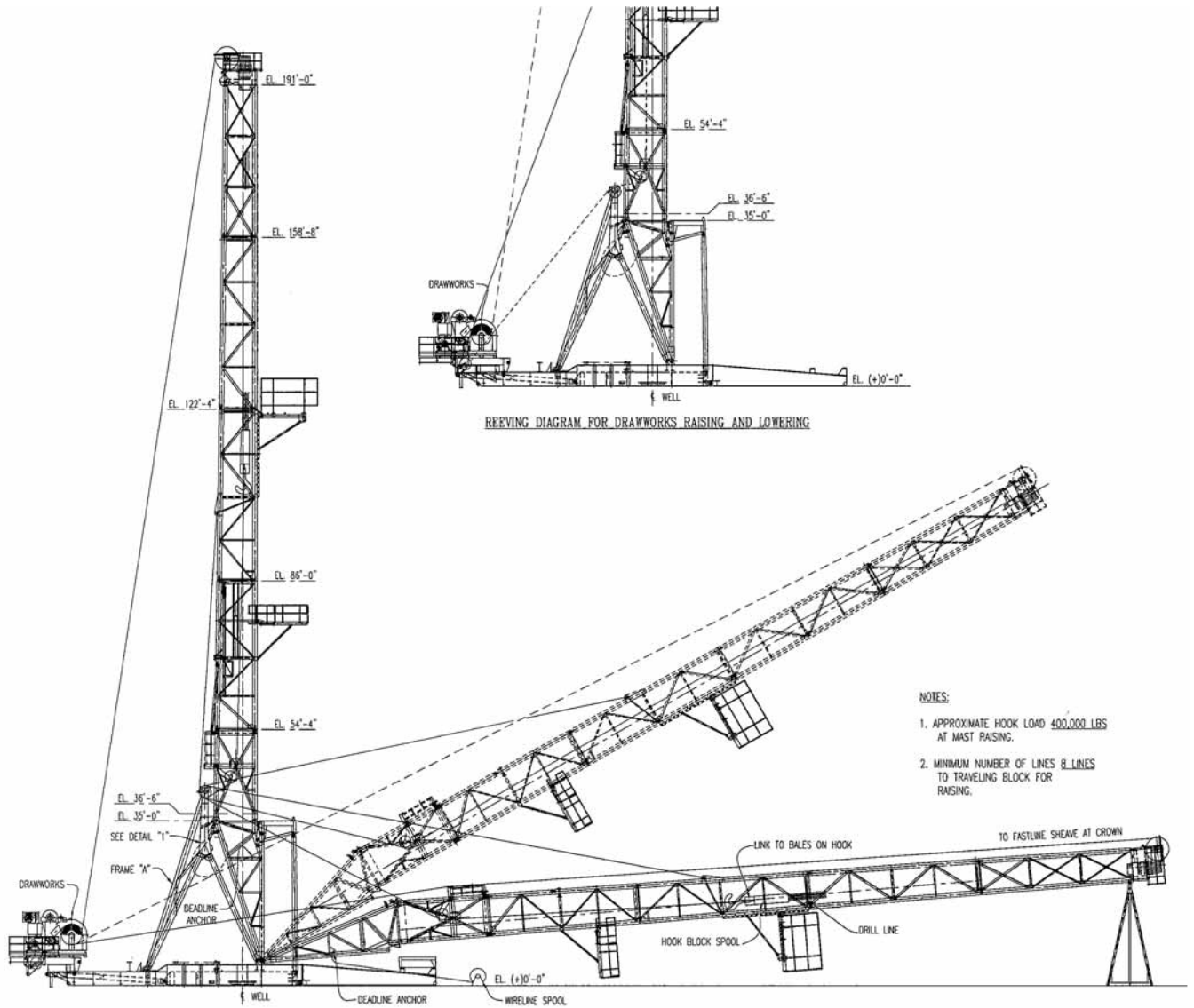
SWING LIFT Type masts and substructures

technical data

| Model | hook load | | lines to TB | setback load capacity m | drawworks input power HP | mast height | | substructure height up to: | |
|----------------|-----------|-------|-------------|----------------------------|-----------------------------|-------------|------|----------------------------|----|
| | lbs | mt | | | | ft | m | m | ft |
| DM 650 | 650,000 | 300 | 10 | 204 | 1200 | 142 | 43 | 7,6 | 25 |
| DM 750 | 760,000 | 344 | 12 | 204 | 1500 | 142 | 43 | 7,6 | 26 |
| DM 1300 | 1,300,000 | 590 | 14 | 360 | 2000 - 2500 | 156 | 47.5 | 10,6 | 35 |
| DM 1500 | 1,500,000 | 680 | 14 | 460 | 3000 | 156 | 47.5 | 12,9 | 40 |
| DM 2000 | 2,000,000 | 910 | 16 | 600 | 3000 - 4000 | 156 | 47.5 | 12,9 | 40 |
| DM 2500 | 2,500,000 | 1.130 | 16 | 600 | 3000 - 4000 | 156 | 47.5 | 12,9 | 40 |

- 1 - Rapid mast on its horizontal and initial position
- 2 - Swing lift raised
- 3 - Mast raising of a swing lift rig in Drillmec test yard
- 4 - Assembling of a swing lift rig in Drillmec test yard
- 5 - Swing lift mast raising
- 6 - Mast raising of a swing lift rig in Drillmec test yard
- 7 - Big wheels equip the desert trailer in Drillmec S.p.A. fast moving desert rig
- 8 - MAS Swing lift Series rig in Middle East





Swing lift mast rig up

SWING LIFT Rig Up procedure

1. Positioning of the sub structure, the drawworks and the mast in horizontal position.
2. Connecting through pins the mast to the substructure.
3. Raising the mast with the drawworks elevator system (automatically half the working floor goes in position) and lock it with pins.
4. Change the configuration of the wire ropes used to raise the mast to raise the drawworks and the other half of the working floor.
5. Lock the parts with pins.



DESERT RIGS

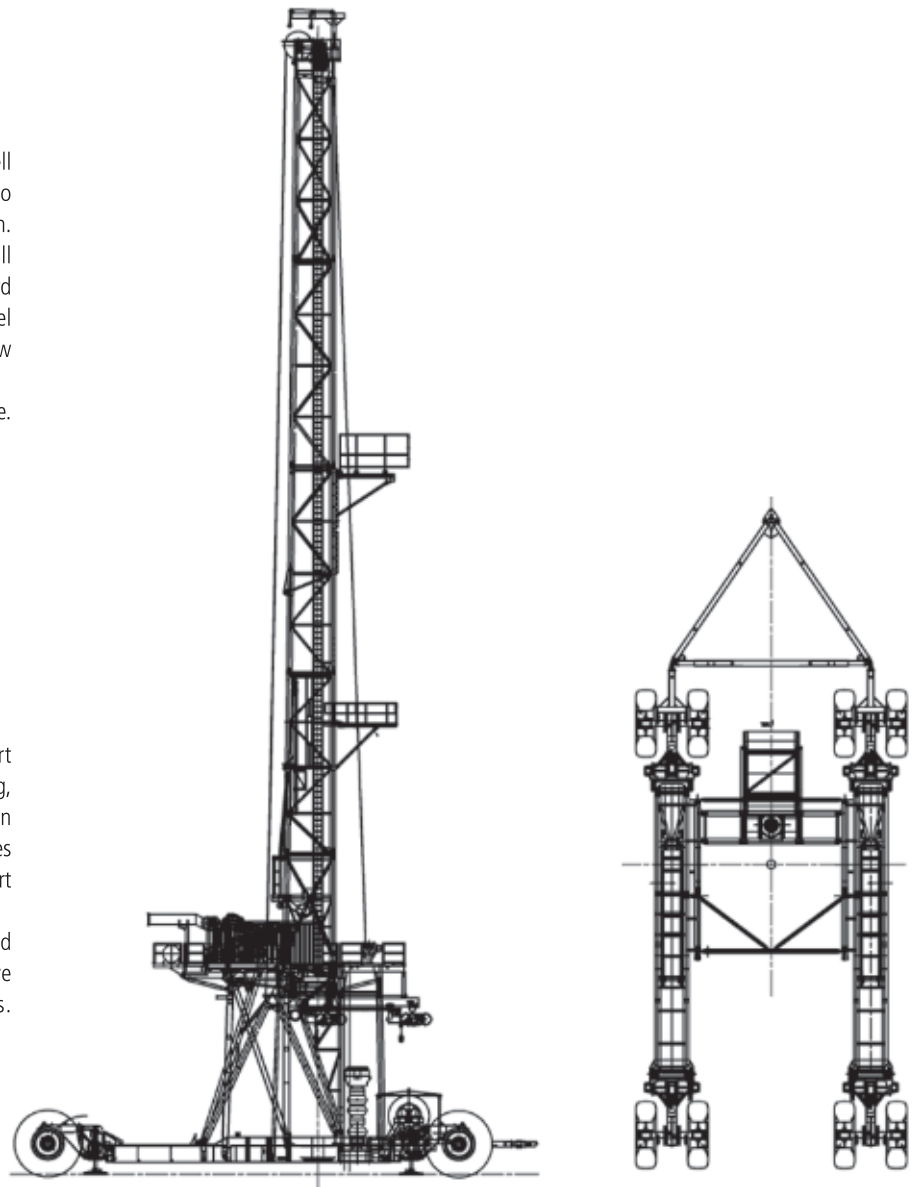
Drillmec S.p.A. manufactures special desert rigs, as well as modifications of customer's standard rigs in order to allow the desert moving with the mast in vertical position. Our desert rig construction –or modification- imply all necessary features to allow an easy and safe move in hard desert conditions by providing substructure, fifth wheel hoist, special sand tires, special suspension, leveling screw jacks to fulfill customer requirements. The modification could be, on request, performed on site.

Drillmec desert rig packages include :

- Integral substructure
- Integral hydraulic system
- Integral mud pump
- Free standing mast without guy lines
- Integrated BOP handling system
- Safe and easy rip up

Drillmec S.p.A. rigs are also customized for desert condition applying special features such as special painting, able to resist to the continuous sandblasting common in sandy deserts, by applying a special air filter to the engines and a special protection from sand infiltrations in any part of the hydraulic system.

The dog house, PCR and other closed areas are climatized to preserve functionality of the devices and to improve the work hard conditions for the operators.



DRILLMEC HELICOPTER RIGS

- Open face cantilever mast
- 70 lifts maximum single load 4000 lbs, 142 feet x 25 feet high x 25 feet base,
- Rated hook load capacity of 750,000 lbs, setback capacity 400,000 lbs max wind with pipe racked 85 mph



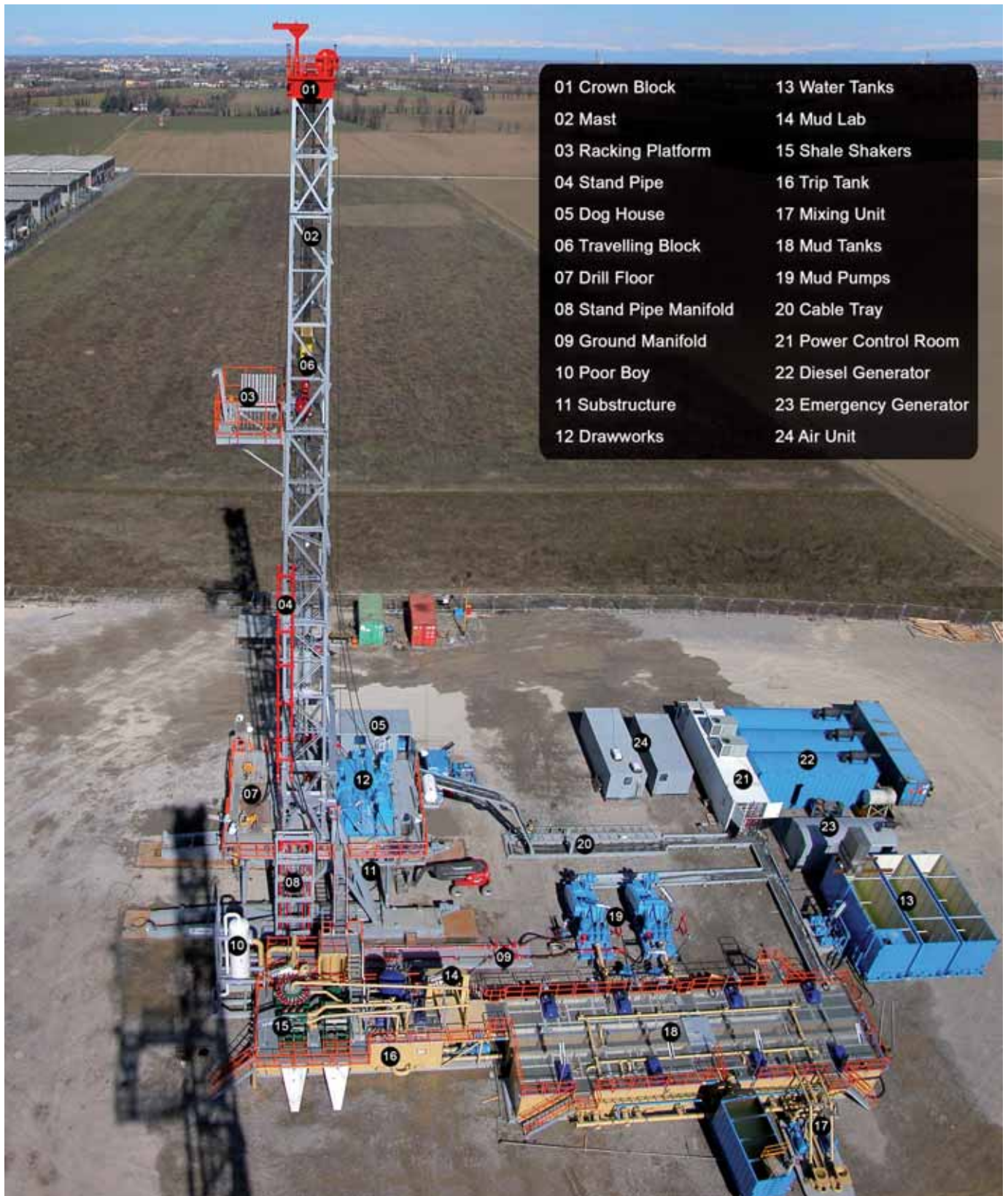
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LAND BIG substructures

Drillmec has intensive inventory of substructures solutions for oil drilling and workover applications.

Box type, skid mounted , swing lift, sling shot and skidding installations are currently available in Drillmec portfolio. All substructures are supplied with adjustable seats around the rotary table

Product line:

- Swing lift substructures
- Sling shot substructures
- Box on box substructures
- Skidding system
- Trailerized substructures

All these structures can be designed in accordance with customer's specifications and requirements.

Swing lift solutions are designed to limit the need of a subsidiary crane using the drawworks power (only two lifts are required). First the mast and setback are raised to vertical position , then the drawworks, working floor and dog house are elevated to operating floor height.

It is used in both phases a reliable sheave and a wireline erection system.

The wide open space under the substructure allows easy access to install and operate on BOP systems.

The simple design reduces loads and moving time, assuring at the same time high rigidity and stability to the structures.

Advantageous characteristics:

- Custom designed according to customer's needs
- Swing lift Solution to limit Subsidiary crane use
- Use of Drawworks for Rig-Up with two lifts only
- Use of Reliable sheaves and wire-line system



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- 9 - Sling Shot substructure
- 10 - Rapid substructure
- 11 - Manufacturing Swing lift substructure
- 12 - Sling Shot substructure 600.000 lbs
- 13 - Sling Shot substructure 600.000 lbs
- 14 - Sling Shot substructure 1.300.000 lbs



12



13



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LAND RIG DRAWWORKS MAS

With the inherited MASSARENTI experience and the continuous innovation, Drilmec produces a wide range of drawworks using modern and precise engineering. The sprockets teeth are hardened by induction, minimizing the wearing.

Combined with other Drilmec products, the drawworks can be fitted to all mechanical rigs both mobile and land rigs with the following characteristics:

- Wide range of power from 1000 to 3000 HP with a nominal depth range of 2000 to 10000 m.
- A choice between band brake and disk brake system.
- Drawworks line electrically driven with AC/DC motors coupled to input shaft.

Other features that make the Drilmec drawworks reliable and effective are:

- Main frame made of high resistance steel
- Low drum air clutch Airflex type or Twin Disk
- Rotary air clutch Airflex type
- Rotary drive sprocket
- Crown-o-Matic device
- Water cooling system brake
- Auxiliary Brake Parmac or Wichita
- Oil field type chains
- All chains have forced lubrication system with flange mounted gear pump
Lubrication system functions in forward and reverse rotation
- Grease lubricated floating sprockets
- Self-aligning and grease lubricated main shaft roller bearings
- Oil-tight
- Foster make up catheads (or equivalent)
- Foster breakout catheads (or equivalent)
- Console control panel to operate drawworks, clutches
- Emergency shutdown

- 15 - MAS 7000 DW with band brake
- 16 - MAS 6000 DW with active disk brake system
- 17 - Drawworks assembly plant
- 18 - MAS 7000
- 19 - MAS 5000 manufacturing



| | | MAS 8000 | MAS 7500 | MAS 7000 | MAS 6000 | MAS 5000 | MAS 3000 |
|--------------------------------------|--------|-----------------|----------------|-----------------|-----------------|----------------|---------------|
| Horse power rating | HP | 3000 | 2500 | 2000 | 1500 | 1200 | 1000 |
| Nominal depth range | m | 8.000 to 10.000 | 6.000 to 8.000 | 4.000 to 6.000 | 3.500 to 5.000 | 3.100 to 4.500 | 2.100 to 3400 |
| Wireline size | inches | 1.3/4 | 1.5/8 | 1.1/2 | 1.3/8 | 1.1/4 | 1.1/4 |
| Hoisting drum size (diam x length) | inches | 36 x 62 | 36 x 62 | 31.1/2 x 61 | 28.1/2 x 55 | 30 x 49 | 28.1/2 x 56 |
| Disk brake size / (diam x thickness) | mm | 1950 x 70 | 1950 x 70 | 1800 x 60 | 1690 x 60 | - | 1690 x 60 |
| Brake rim size / (diam x length) | inches | - | - | 66.1/8 x 12 | 52.3/4 x 10.5/8 | 52 x 10.3/8 | 52 x 10.3/8 |
| Drum chain drive size | inches | 2.1/2 P-3 | 2.1/2 P-3 | 2 P-4 | 2 P-4 | 2 P-4 | 1.3/4 P-6 |
| Transmission chain size | inches | 1.3/4 P-6 | 1.3/4 P-6 | 2 P-4 1.1/2 P-6 | 1.1/2 P-4 | 1.1/2 P-4 | 1.3/4 P-4 |
| Hoisting speed | | 4 REV 4 | 4 REV 4 | 4 REV 4 | 4 REV 4 | 4 REV 4 | 4 REV 4 |
| Catshaft speed | | 4 REV 4 | 4 REV 4 | 4 REV 4 | 4 REV 4 | 4 REV 4 | 4 REV 4 |
| Low drum clutch | | PO 342 | PO 342 | PO 342 | PO 336 | PO 336 | PO 230 |
| High drum clutch | | PO 336 | PO 336 | PO 336 | PO 230 | PO 230 | PO 224 |
| Width overall | mm | 5234 | 5234 | 3950 | 3945 | 3990 | 6420 |
| Width for transportation | mm | 3200 | 3200 | 2700 | 2680 | 2810 | 3450 |
| Height overall | mm | 3150 | 3150 | 3150 | 3150 | 3150 | 2566 |
| Lenght overall | mm | 8360 | 8360 | 8225 | 6530 | 6180 | 4000 |
| Weight | kg | 52.000 | 52.000 | 48.000 | 45.000 | 45.000 | 45.000 |
| Hoist capacity 16 lines | lbs | 1.700.000 | - | - | - | - | - |
| Hoist capacity 14 lines | lbs | 1.550.000 | 1.300.000 | 1.087.000 | - | - | - |
| Hoist capacity 12 lines | lbs | 1.300.000 | 1.157.000 | 950.700 | 750.000 | - | - |
| Hoist capacity 10 lines | lbs | - | 1.000.000 | 807.700 | 648.000 | 639.340 | 550.000 |
| Hoist capacity 8 lines | lbs | - | - | - | 537.000 | 522.495 | - |



Drillmec policy is one of continuous product improvement, therefore specifications are nominal and subject to change.



commercial network

- SOILMEC LTD. - U.K.
- SOILMEC MISR. S.A.E. CO. - Egypt
- SOILMEC GULF FZCO - U.A.E.
- DRILLMEC INC. - U.S.A.
- OOO "DRILLMEC R" - Russia
- SOILMEC FRANCE SAS - France
- DRILLMEC IRAQ LTD. - Iraq
- SEISMOTEKHNIKA - Belarus

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certified quality system



Drillmec quality management system is certified by API (American Petroleum Institute) and DNV (Det Norske Veritas) and GOST-R (Russian approval) for special products



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