

Manuli Hydraulics products on farm industries

Technical MKT

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Summary

Manuli Hydraulics has various collaborations and supply to important OEMs in agriculture industry, for example JCB, CNH, Claas, MTZ, John Deere, Kubota, etc.

The document presents some market references and case history to support the worldwide business in farm industry.



Traditional MH products used in agriculture equipment



HARVESTER/17

- the basic hydraulic hose for agriculture equipment;
- compact, light and extremely flexible hose, wire braided structure, is the key product for agriculture machines;
- Medium pressure 210 bar (3000 psi)
- Reduced bend radius
- No-skive fittings, European (two-piece) and American (one-piece) style
- Chlorine-free compounds



Golden ISO™ /21 & /28 Antiwear

- Used telescopic booms and agriculture machines, in construction, mining and general hydraulics.
- Compact wb hose structures for restricted bend radii:
 - GoldenISO/21 AntiWear ISO 18752- Grade A & SAE 100R17 (WP=210 bar)
 - GoldenISO/28 AntiWear ISO 18752- Grade A & SAE 100R19 (WP=280 bar)
- Rubber cover “SHARC” style, beyond the limits in abrasion resistance:
 - ✓ Harshness-scratching proof
 - ✓ Flame retardant MSHA & antistatic, compliant for mining
 - ✓ High weathering resistance
 - ✓ Excellent ozone resistance



Qsafe quick couplings range

- Basic and more used quick couplings in agriculture
- Simple connection & disconnection by pulling back the sleeve
- ISO A and B are compliant with the equivalent international standards

Modern farm industry equipment use advanced hydraulic hoses, wire braided and wire spiral, also smart fittings and advanced quick coupling solutions to make it easier the installations and maintenance operations.

Among the product range selected we find:

- **ANACONDA** hose: high flexibility and reduced Min. Bend Radius hose for WP=420 bar (heavy duty);
- **GOLDENISO/35 & /42 Xtraflex**: heavy duty wire spiral hoses with compact and flexible structures;
- **FAST-FIT**: threadless push to connect fitting for narrow spaces critical installations;
- **ISO-A** quick couplings and more specific **MQS-AF ISO A Push-Pull** Female quick couplings, **MQS-F Flat-Face** quick couplings;
- **ROCKMASTER** traditional hydraulic hoses for severe environments and the new **FOREMASTER** range for extra abrasion and scratch resistance in harsh applications (sugarcane harvesters, etc.);
- **REFRIMASTER/PLUS** is used in air conditioning of agriculture equipment.

Worldwide market, see relevant applications of MH products from China to Europe, North America and South America.



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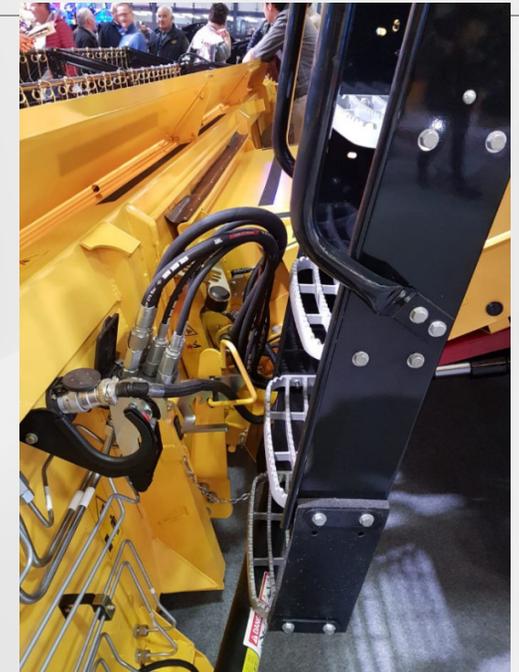


- **Eternity/2**
 - **GoldenISO/35 Xtraflex**
- on JCB agriculture equipment (FASTRAC), tractors of latest generation



EIMA exhibition 2018 (Italy)

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CNH combine harvesters with Manuli Hydraulics hose assemblies

MULTITEX hose on CNH combine harvesters

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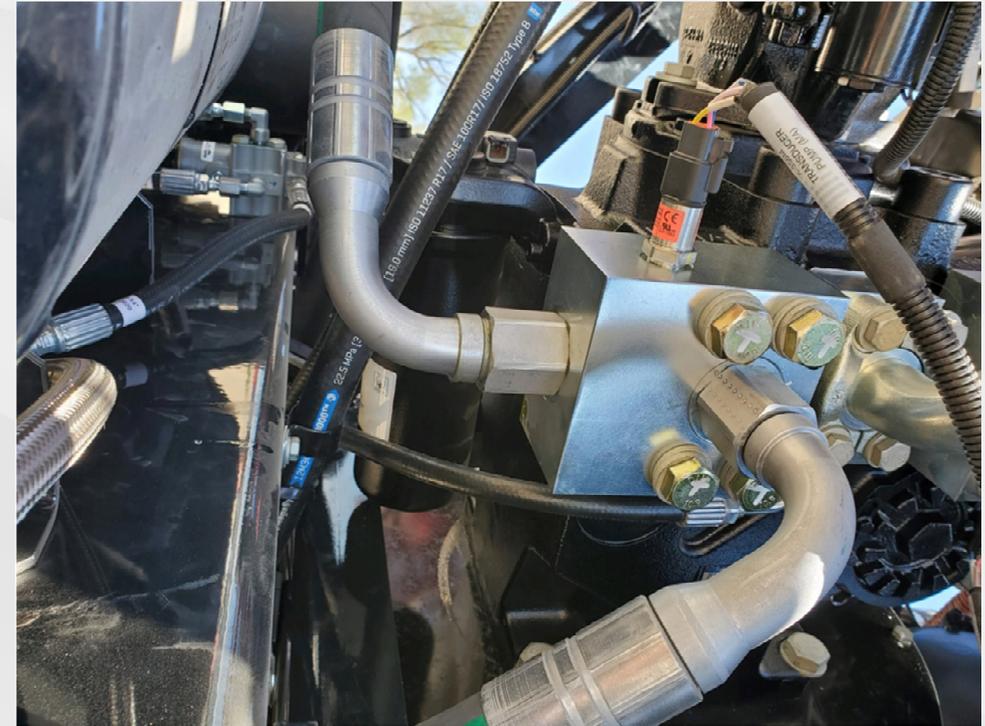
ANACONDA DN 19, 25 assemblies with FAST-FIT fittings (push to connect) approved and used on **CNH** agriculture machines, USA (**CNH** CT56, sprayer machines, 2020),



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CNH **Fast-Fit** case history (USA), 2021



CNH (USA) approved and put in manufacturing drawings the MH **Fast-Fit**, here relevant photos, with ANACONDA hose (420 bar) and Zinc-Nickel technology (e-coat 1000). Restricted spaces for installation and easier maintenance. Sprayer equipment.



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ANACONDA™

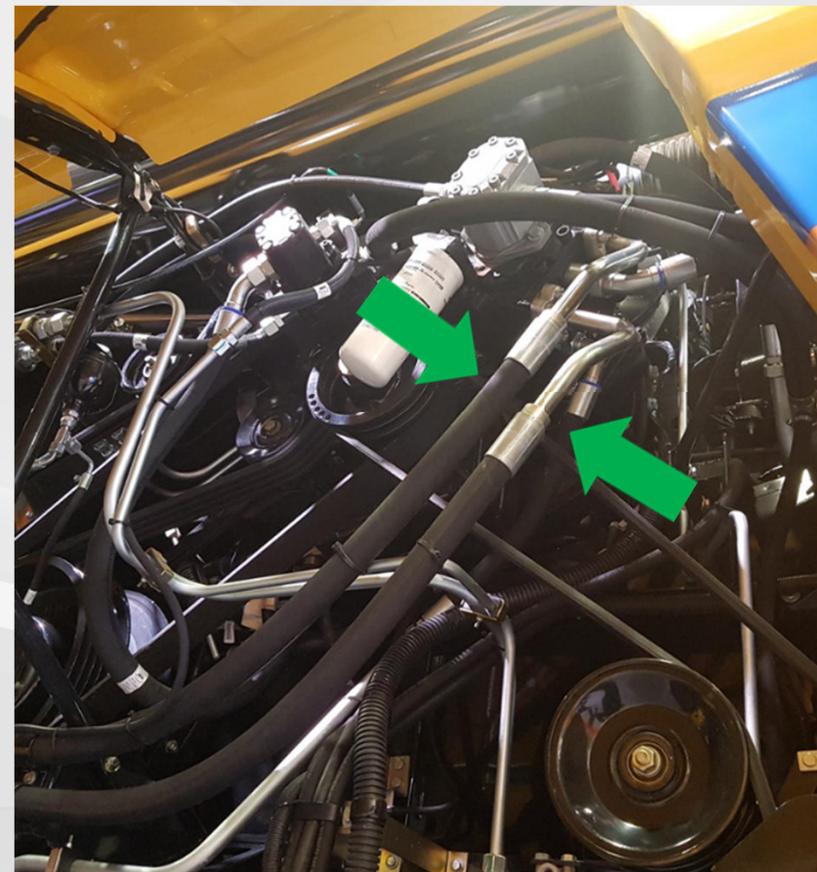
ANACONDA DN 31

Used by important OEM **CNH**

Location: Spain

Application: Hydrostatic transmission

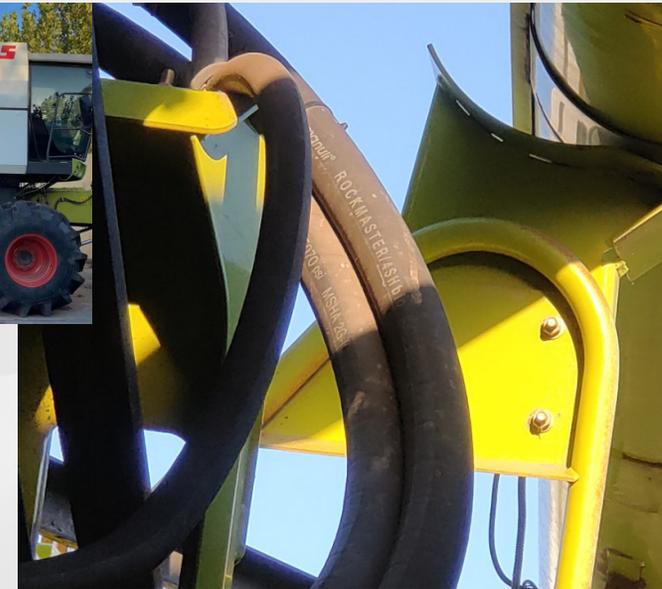
Assies: 4 hose assemblies -6m length





Heavy duty wire spiral hoses are selected and used in combine harvesters, **China** and **EU** markets:

- ROCKMASTER/4SH
- ANACONDA DN 31
- GOLDENISO/42 XTRAFLEX DN 19



MH ROCKMASTER/4SH hoses on CLAAS machine made in China



Refrigeration hoses are also used for air conditioning:

- REFRIMASTER/PLUS DN 8



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MTZ Belarus TRACTORS, Oct. 2021

MH quick couplings used by **MTZ** tractors, an important OEM in agriculture.



MTZ entrance, exposition area



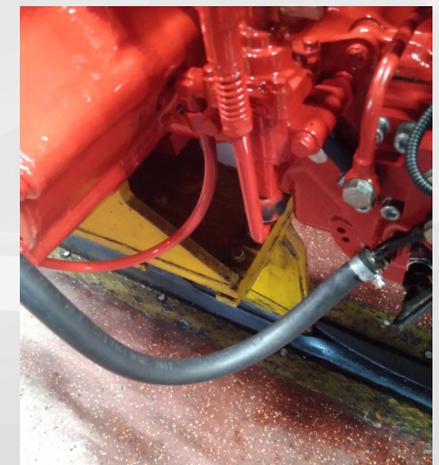
General view of the main assembly line



MQS-AF ISO A Push-Pull Female -08 installed closed view. MQS-A ISO A Males -08 are also used.

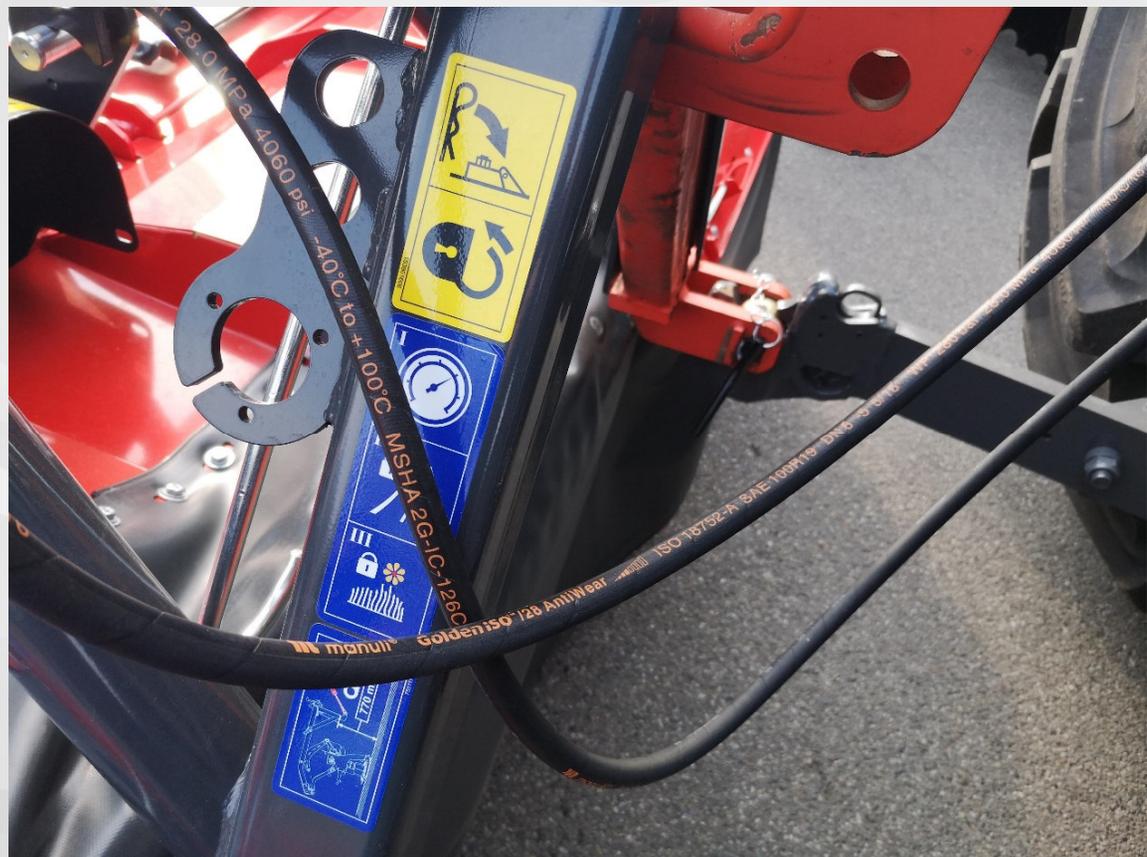


Tractor with Manuli QSafe



Textile low pressure hose with bulge tail fitting and fascette

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Large agriculture equipment with cultivator tooling (Feb. 2020, North Europe):

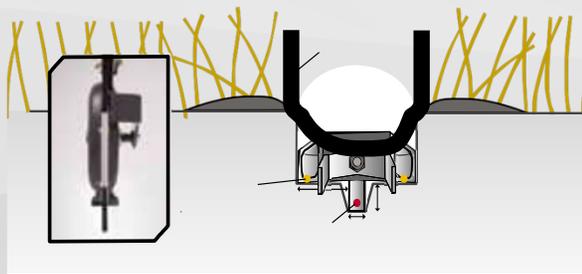
- **VADERSTAD:** Rockmaster/2SC + Q.safe ISO A 1/2" + ISO A 3/4 Female;
- **SIP:** GoldenISO/28 AW + Q.Safe ISO A Male 1/2";
- **KEVERNELAND:** Lyteflex + Q.Safe ISO A 1/2" Male

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SEED HAWK, OEM customer through third party distribution in Winnipeg (Canada), utilizing Manuli's **GoldenISO/28 AntiWear**

Twin Wing Seed Knife



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Application: Beet harvester TERRA DOS T3
Manufacturer: Holmer Maschinenbau GmbH (Germany)



Severe heavy duty hose application on hydrostatic drive:

- Working Pressure 420 bar
- Safety Valve 420 bar
- Peak pressure: 450 bar
- Flow rate 615 l/m
- Fluid speed @DN38mm 9 m/s

DIAMONDSPIR DN 38 (WP=475 bar) has been selected for this special heavy-duty application.

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Rockmaster wb & ws hose assemblies on **JOHN DEERE** machines, equipped with special tooling. MH products are approved John Deere.



Rockmaster wb & ws hose assemblies on EC-Oil Tiltrotator on a John Deere 210G LC excavator (Conexpo exhibition 2020)

ROTOFIT (swivel Manuli fittings) on Engcom tooling are frequently used.



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MH references at
EIMA exhibition
2018 & 2021 (Italy)



Rockmaster/2SC integrated solutions on MTS-SANDEI special harvester machines (**tomatoes harvester equipment**)

<http://www.mts-sandei.com/>

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ENERGREEN: manufacturer of professional machines, road grass cutters and borders cleaning, winter roads cleaning, special robot machines.

Applications of Manuli **Goldeniso AntiWear & Xtraflex** hoses, **Rotofit** and **Q.Safe** range in ENERGREEN machines

MH references at EIMA exhibition 2018 (Italy)

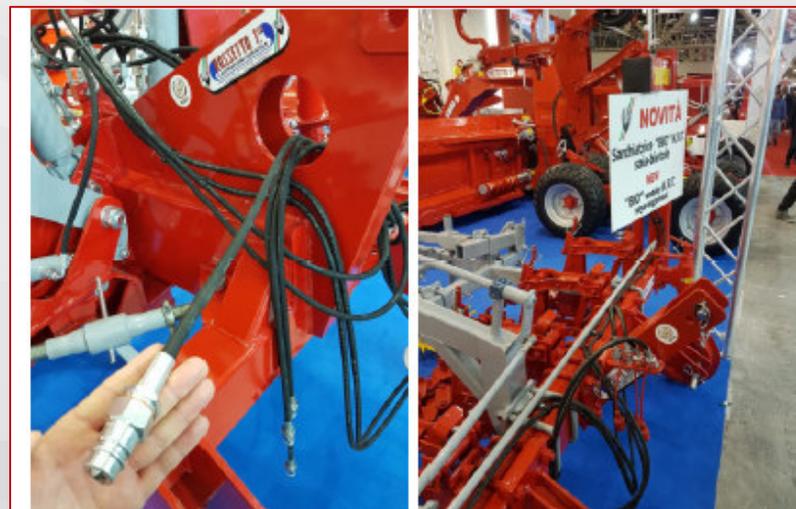
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Trailers equipment for agriculture: BERTI & ROSSETTO use integrated hoses and fittings by Manuli Hydraulics (Italy)



MH references at
EIMA 2018 exhibition
(Italy)



ROSSETTO



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Strong presence in FARM industry Brazil, through Hennings (third party distributor)



OEM and aftermarket, main farm exhibitions representation.

Rockmaster, GoldenISO, Foremaster brand hoses used.

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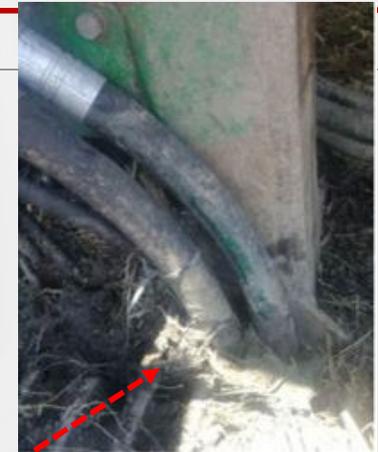
Operations in OEM and aftermarket, in construction, forestry, **agriculture** and **special farm industry** such as **sugarcane harvesting** (Brazil).



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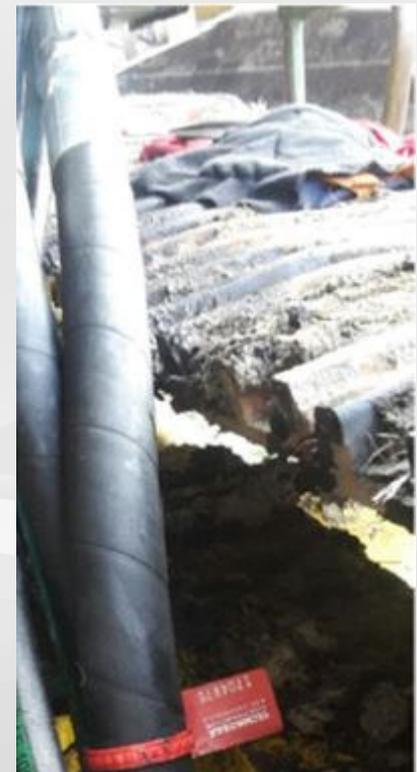


Sugarcane Harvesters: field testimony in Colombia



Heavy cover abrasion

Foremaster/28 & /35: the solution



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Kubota mini-excavator, Harvester/17 hose
Conexpo Las Vegas 2017



MQS-SG: SCREW TYPE QUICK COUPLINGS, France



BERTHOUD[®]

Forward together



2- Visual observation after 12 months
No leakage after 12 months
Presence of corrosion but less than competition

Since 1895, Berthoud have been recognized for their technical excellence and innovative designs in **crop spraying technology**. BERTHOUD is today one of the few sprayer manufacturers to design its equipment from A to Z. Based on decades of research and experience, engineers in the BERTHOUD design office think up and design each of the parts and sub-assemblies of their sprayers.

PELENC Specialized agriculture Case history of MH quick couplings



Multifunction straddle tractors for narrow vines, OPTIMUM 340 and GRAPES' LINE, a range of tow grape harvesting machines. Highly innovative Group in France, with field expertise, this technology combines performance, ergonomcy and safety.



Optimum 340 vineyards tractors
MH MQS-F series: optimum performance



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CIAME—China International Agriculture Machinery Exhibition (2019) held in TsingTao (West coast new district, Shandong province).



KUBOTA tractors



XingGuang agricultural machinery



XingGuang grass bander equipped with Manuli **ROCKMASTER/2SN**

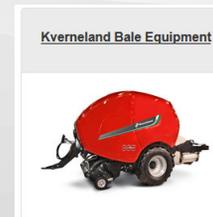
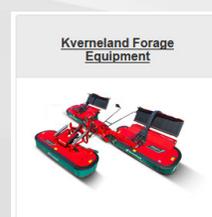
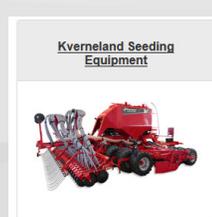
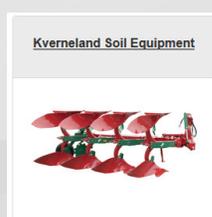
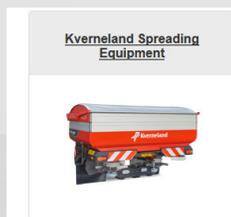
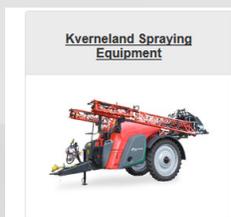
MQS-A, POPPET VALVES: case history of quick couplings



- Example of current use of **Q.Safe** quick couplings in tractors and tooling for farm industry (France)

- **For each soil tool: 5 male quick couplings: Q00211041A-08-08**
- **For each tractor: 5 female quick couplings: Q00811021A-08-08**

During 2019, Kverneland Group is celebrating its 140th anniversary. Since 1879 the company has grown into a multinational agricultural implement specialist, with 2,482 employees. With 140 years of experience in agriculture, Kverneland will continue to further develop innovative implement solutions for the farming society - Dedicated to the Future of Farming serving the world's growing population



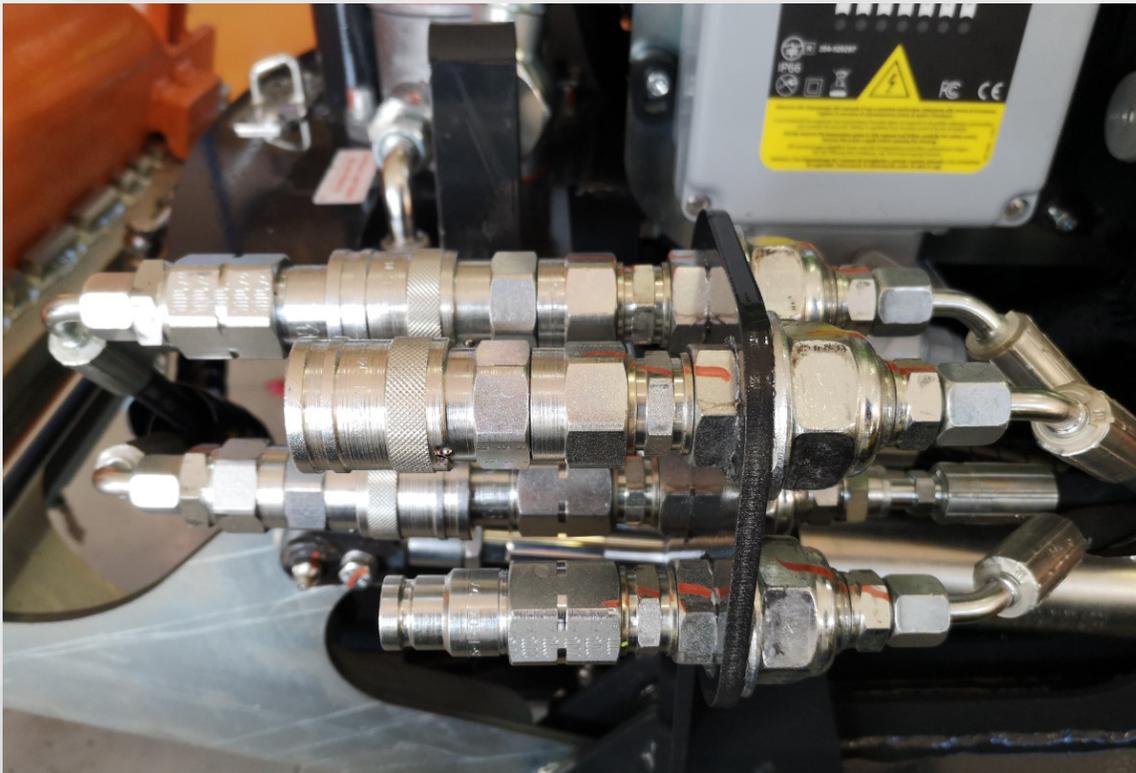
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Case history of MH quick couplings

MDB - Italy: medium size manufacturer of special machines for **agriculture**, forestry, grass cutting, road cleaning, 90% for foreign markets (50% in USA)

Manuli Hydraulics integrated products:

- **MQS-F** (Flat Face)
- **Rockmaster & GoldenISO** hoses & fittings

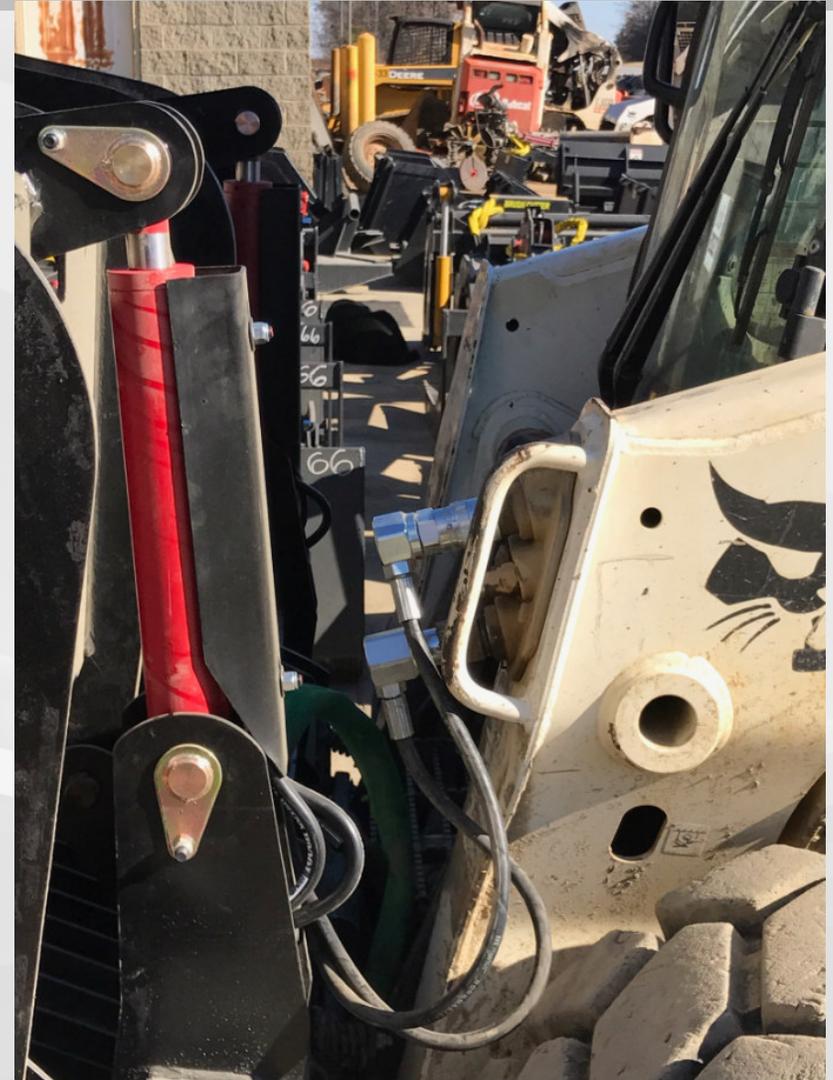


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Case history of MH quick couplings

- USA market, customer distributor: Hydra-flex
- **Special MQS-F** Q04111301B-08-08 and Q03911301B-08-08 designed for North American Implement (<https://northamericanimplements.com/>), Thomasville (NC);
- **Applications:** QC's were placed on NAI **implements**, such as **Root Grapples**, to hook up, mainly Bobcat skid steers, they are currently being used;
- The special 90degree QC provides a nice and smooth routing, which ultimately increases the life of the hose.



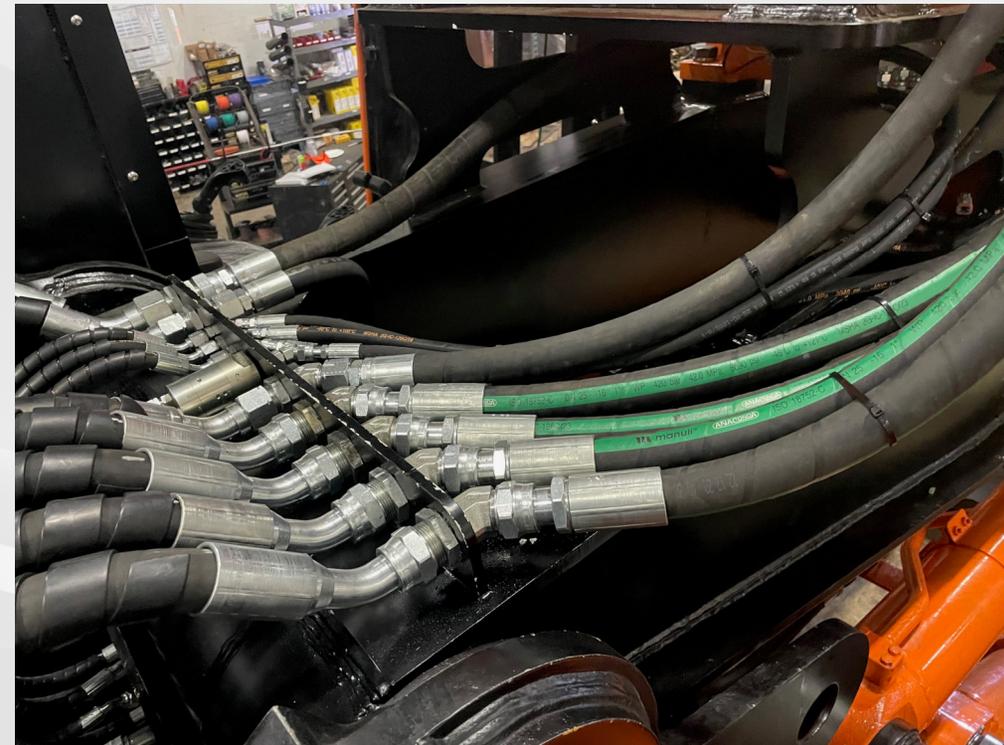
FORESTRY machines Oct. 2021 (SUMMIT ATTACHMENTS & MACHINERY, USA)



ANACONDA hoses case history

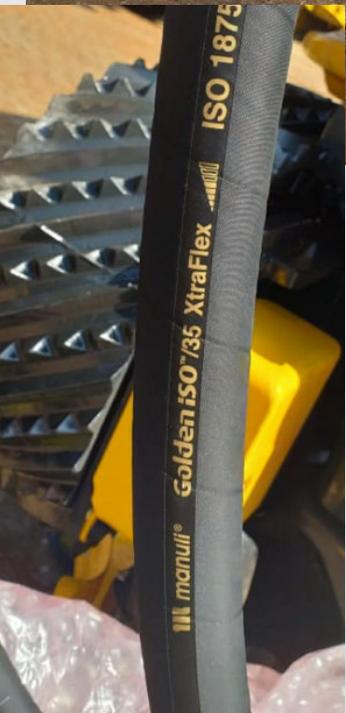


SUMMIT ATTACHMENTS & MACHINERY
Innovative Solutions in Action

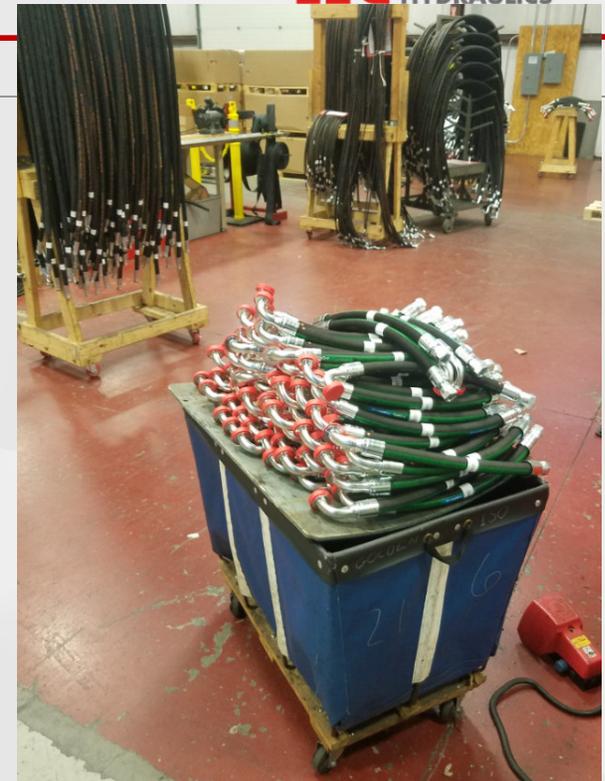
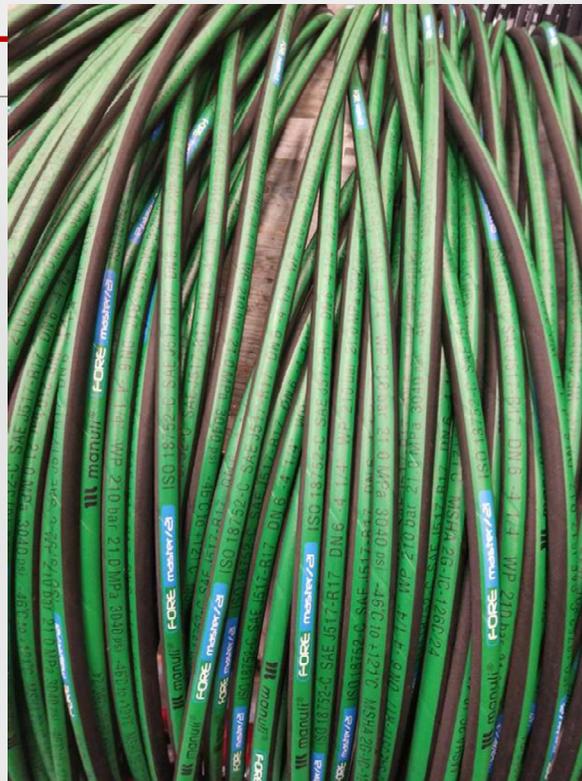


Special machines and attachments for forestry applications (USA).
ANACONDA hose is selected for its high flexibility and suitability in difficult installations.

FORESTRY Brazil case history 2021 (Komatsu, Ponsse, others) GoldenISO/35 Xtraflex and Foremaster hoses



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Foremaster/21 case history

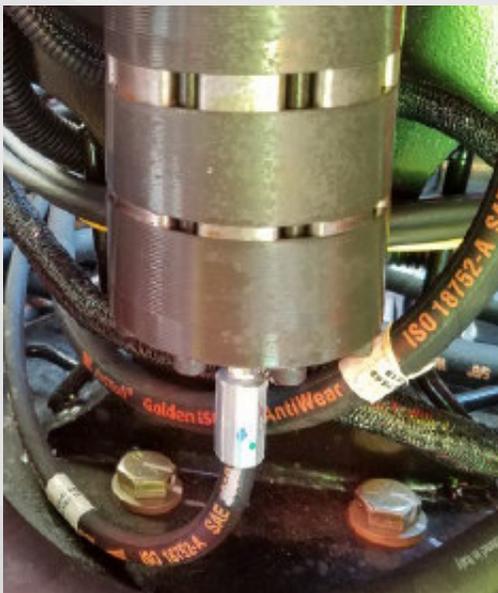
Foremaster/21 assemblies used on **JLG** SkyTrack Machines (Oct. 2019, USA)



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GoldenISO AntiWear assemblies used on **JLG** SkyTrack Machines, USA.



Conclusions:

- Manuli Hydraulics is strongly present in the worldwide farm industry equipment, both in Original Equipment market and in aftermarket distribution;
- Manuli Hydraulics presence in farm industry equipment is more oriented to advanced and hi-grade products, but offer also a wide range of commodity products;
- The modern hydraulic hose applications in farm industry equipment consider high demanding products with severe mission profiles;
- Farm industry hydraulic equipment is a growing market worldwide.