LETONE · 利通科技

让利通助力全球智造

石油钻采软管

PETROLEUM DRILLING HOSE

WWW.LETONE.CN

企业简介 Company Profile

始于2003年，利通科技专注于高分子材料共混，高分子材料改性、液压软管、石油钻采软管、压裂软管、橡塑复合软管、超高压树脂软管、流体连接件、软硬管总成及橡塑密封制品的生产、研发与销售，是一家提供流体输送高效解决方案、高分子材料共混物高性能解决方案、页岩油气增产酸化压裂管路高效输送解决方案、超高压水射流管路输送解决方案、汽车空调管路系统解决方案、氢气加注管路系统解决方案的国家级高新技术企业。稳定的产品质量及良好的口碑为其连续多年赢得中国橡胶工业协会胶管胶带分会颁发的“胶管行业十强企业”荣誉称号。2021年11月15日，利通科技（股票代码：832225）成为北京证券交易所第一批上市企业，迈向全新的发展阶段。

利通科技现拥有高速编织机50台，钢丝缠绕机35台，工业软管成型生产线8条，流体连接件加工设备200余台，全自动混炼胶生产线3条，混炼胶加工能力2.5万吨，各类软管年产能5000万米,橡胶密封件及其相关制品年产能2000万件。

着眼于流体技术领域，利通科技以**“低弯曲、高压力、长寿命、多功能”**作为产品创新迭代的重点。主要产品包括各类高、中、低压**液压软管**、兼具耐磨、耐腐蚀、耐老化、大口径等特性的橡塑复合软管、获多方国际认证的超高压、等通径的**石油钻采压裂软管**、以高效、安全为主要特点的**超高压树脂软管**、应用范围广阔的高、中、低压**树脂软管**、**氢气加注软管**、**汽车空调软管**、**流体连接件**与**软硬管总成**，以及品种性能多样的**混炼胶**、**改性树脂**、**高温TPV**和**橡塑密封制品**等。产品广泛应用于工程机械、农用机械、石油钻采、建筑、清洗、水射流、钢铁、化工、能源、矿山、轨道交通、船舶制造、食品医药等领域。

利通科技先后通过的产品认证包括**安标**（MA·KA）、**MSHA**、**美国石油协会API产品认证**、**美国船级社ABS型式认可**、**挪威船级社DNV型式认可**、**俄罗斯GOST石油认证**、**劳氏防火认证**等，已通过的管理体系认证包括**质量管理体系**（符合GB/T 19001-2016/ISO 9001:2015）、**武器装备质量管理体系**（符合GJB 9001C-2017）、**石油天然气行业制造类组织的质量管理体系**（符合API Specification Q1）、**汽车质量管理体系**（符合IATF 16949:2016）、**环境管理体系**（符合GB/T 24001-2016/ISO14001:2015）、**职业健康安全管理体系**（符合GB/T 45001-2020/ISO 45001:2018）、**两化融合管理体系**（GB/T 23001-2017）等。利通科技检测中心自2016年起获CNAS认可，设有脉冲试验室、爆破试验室、耐火试验室、盐雾试验室等二十多个试验室，检测结果被认定具有客观性、准确性及权威性。利通橡塑技术产业创新研究院下设液压软管研究所、工业软管研究所、高性能聚合物材料研究所、超高压管路系统研究所、密封技术研究所、金属连接件研究所、汽车橡塑制品研究所和产品中试基地，为推动专、精、特、新项目发展和解决行业“卡脖子”难题夯实根基。

自成立以来，利通科技始终坚持**“诚信为本，用户第一”**的核心价值观，坚定不移的推进**“独创引领，培才优先，植根精益，勇攀巅峰”**的发展战略，紧紧围绕流体技术上下游产业链开展高分子材料共混改性、高温TPV、液压橡塑软管、石油钻采压裂软管、物料输送多功能软管、化学品输送软管、超高压树脂软管、氢气加注软管、汽车空调软管、食品医药软管、流体连接件、橡塑密封制品等的技术研发与制造，以绿色发展为己任，以新能源、新材料、新技术创新引领行业高质量发展，服务于全球装备智能制造，为“成为全球流体技术产业领航者”的伟大目标而奋斗。

Established in 2003, Letone is an industry-recognized high-quality rubber hose manufacture and service company, which devotes to the production, R&D, and sale of polymer alloys, modified polymer materials, hydraulic hoses, petroleum drilling hoses, frac hoses, rubber-plastic composite hoses, ultra-high pressure thermoplastic hoses, fittings, hose assemblies, and rubber-plastic seals. As a high-efficiency fluid transfer solutions provider, Letone offers high-performance polymer alloy solutions, shale oil and gas frac solutions, ultra-high pressure water jetting solutions, air conditioning fluid transfer solutions, and hydrogen fueling system solutions to the clients. Thanks to its stable quality and good reputation in the market, Letone has won the"Top Ten Rubber Hose Enterprises in China" issued by the China Rubber Industry Association Rubber & Belt Branch for many consecutive years. On 15th Nov. 2021, Letone (Stock Code: 832225) is listing on the Beijing Stock Exchange.

Letone now has 50 high-speed steel wire braiders, 35 steel wire spiral machines, 8 industrial hose forming machines, 200 CNC lathes, and 3 automatic rubber compound production lines service in-house. Meanwhile, Letone is capable to produce rubber compounds 25,000 tons, varies hoses 50 million meters, and rubber seals and other rubber products 20 million pieces annually.

Focusing on the fluid technology industry, Letone takes **"tight bend radius, high pressure, long service life, multipurpose"** as the keynotes of product innovation. Its main products include various high, medium, and low-pressure **hydraulic hoses**, abrasion, corrosion-resistant, anti-aging, big size **rubber-plastic composite hoses**, API & ABS certified UHP, full flow **petroleum drilling hoses**, high-efficiency **ultra-high pressure thermoplastic hoses**, various high, medium and low-pressure **thermoplastic hoses**, **hydrogen fueling hoses**, **air conditioning hoses**, **fluid connectors**, **hose assemblies**, **rubber compounds**, **modified resins**, **high-temperature TPV**, and **rubber-plastic seals**. Letone products are widely applied to areas like construction machinery, agricultural machinery, oil and gas, construction, steel, chemical, energy, mining, railway, shipbuilding, food, and beverage processing, etc.

As an experienced professional hose manufacturer, Letone has obtained the **Safety Certificate of Approval for Mining Products, Certificate of MSHA, API Type Approval**, **ABS Type Approval**, **DNV Type Approval**, **GOST Certificate**, **Lloyd's Fire Test Certificate**, and meets the requirements of quality management systems such as **ISO9001:2015**, **API Q1**, **IATF 16949:2016**, **ISO 45001:2018**, etc. Letone also holds the environment management system international certification issued by IMS (comply with **ISO14001:2015** standard). The Letone Testing Center has obtained the **Laboratory Accreditation Certificate issued by CNAS** in 2016, which has more than 20 laboratories, including an impulse test laboratory, burst test laboratory, fire test laboratory, salt spray laboratory, etc. The testing report is identified as objectivity, accuracy, and authority.

In the past years, Letone has adhered to the core value of **"integrity-based, clients first"**, and followed the development strategy of **"Original Leading. Talents Engaging. Rooting in Lean Production. Aiming for Peaking"** as guidance. Sticking to the upstream and downstream industrial chain of fluid technology, Letone is carrying out technical R&D and manufacture on polymer alloy and modification, high-temperature TPV, hydraulic rubber-plastic hoses, petroleum drilling hoses, frac hoses, multipurpose hoses, chemical hoses, ultra-high pressure thermoplastic hoses, hydrogen fueling hoses, air conditioning hoses, food & medical hoses, hose fittings, and rubber-plastic seals serve to global equipment manufacturers. Letone is continuously contributing to global intelligent manufacture and striving to lead the fluid technology industry towards prosperity.

LETONE · 利通科技

QUALIFICATION & CERTIFICATE

企业资质 成为全球流体技术产业领航者

REGISTRATION NO. Q1-3208

Certificate of Registration

The American Petroleum Institute certifies that the quality management system of
LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD.
Private Industrial Park, Economy Development Area
Luohe, Henan
People's Republic of China

has been assessed by the American Petroleum Institute and found to be in conformance with the following:

API Specification Q1

The scope of this registration and the approved quality management system applies to the:

Design and Manufacture of Rubber Hose and Rubber Seal

API approves the organization's justification for excluding:
Servicing

Effective Date: MAY 12, 2020
Expiration Date: MAY 12, 2023
Registered Since: MAY 12, 2017

Vice President of Global Industry Services

API Spec Q1 Registered

Certificate of Authority to use the Official API Monogram
License Number: 7K-0493
ORIGINAL

The American Petroleum Institute hereby grants to
LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD.
Private Industrial Park, Economy Development Area
Luohe, Henan
People's Republic of China

The right to use the Official API Monogram™ on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API-7K and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: 7K-0493

The American Petroleum Institute retains the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: High Pressure Mud and Cement Hoses at FSL-3, at FSL-1, at FSL-2

American Petroleum Institute

QHS Exclusions: Servicing

Effective Date: MAY 12, 2020
Expiration Date: MAY 12, 2023

To verify the authenticity of this license, go to www.api.org/composlicenses

Vice President of Global Industry Services

Certificate of Authority to use the Official API Monogram
License Number: 16C-0403
ORIGINAL

The American Petroleum Institute hereby grants to
LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD.
Private Industrial Park, Economy Development Area
Luohe, Henan
People's Republic of China

The right to use the Official API Monogram™ on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API-16C and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: 16C-0403

The American Petroleum Institute retains the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Flexible Choke and Kill Lines at FSL-3, FSL-1, FSL-2, FSL-1

American Petroleum Institute

QHS Exclusions: Servicing

Effective Date: MAY 12, 2020
Expiration Date: MAY 12, 2023

To verify the authenticity of this license, go to www.api.org/composlicenses

ABS

Confirmation of Product Type Approval

Company Name: LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD
Address: PRIVATE INDUSTRIAL PARK, ECONOMY DEVELOPMENT AREA ,LUOHE, HENAN PROVINCE, P.R. CHINA 462000 China
Product: Drilling Equipment (Hoses)
Model(s): LT301 - High-pressure Mud and Cement Hoses LT302 - Flexible Choke and Kill lines

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	20-SG19610339-PDA	10-MAR-2020	09-MAR-2025
Manufacturing Assessment (MA)	19-QE0738006	25-SEP-2019	24-SEP-2024
Product Quality Assurance (PQA)	NA	NA	NA

Tier
0

Intended Service
Offshore Applications: High-pressure Mud and Cement Services and Flexible Choke and Kill Services

Description
LT301 - API 7K High-pressure Mud and Cement Hoses 2"/2.5"/3"/3.5"/4"/6".

LT302 - API 16C Flexible Choke and Kill Hoses 2"/2.5"/3"/3.5"/4".

Ratings
LT301 - API 7K High-pressure Mud and Cement Hoses

Maximum Operating Pressure: 2.5"/3"/3.5"/4"/6": 7,500 PSI (51.7 MPa); 2"/2.5"/3": 10,000 PSI (69 MPa); 2": 15,000 PSI (103.5 MPa).

Temperature Range III: -20 °C to +121 °C (-4 °F to +250 °F).

Flexible Specification Levels: FSL0 (2"/2.5"/3": 10,000 PSI (69 MPa); 3": 15,000 PSI (103.5 MPa)).

Flexible Specification Levels: FSL2 (2.5"/3"/3.5"/4"/6": 7,500 PSI (51.7 MPa)).

LT302 - API 16C Flexible Choke and Kill Hoses

Maximum Operating Pressure: 3.5": 5,000 PSI (34.5 MPa); 2"/2.5"/3"/4": 10,000 PSI (69 MPa); 2"/2.5"/3": 15,000 PSI (103.5 MPa).

Temperature Ratings: -29 °C to +121 °C (-20 °F to +250 °F).

Flexible Specification Levels: FSL3.

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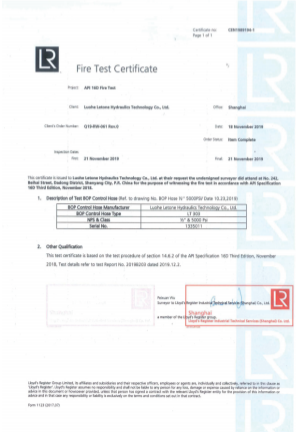
Fire Test Certificate

Project: API 16D Fire Test
Client: Luohe Letone Hydraulics Technology Co., Ltd.
Office: Shanghai
Client's Order Number: Q19-050-001 Rev.0
Date: 18 November 2019
Order Status: Item Complete
Inspection Date: 21 November 2019
Final: 21 November 2019

This certificate is issued to Luohe Letone Hydraulics Technology Co., Ltd. at their request the undersigned surveyor did attend at No. 241, Industrial Park, Economy Development Area, Luohe City, P.R. China for the purpose of witnessing the fire test in accordance with API Specification 16D Third Edition, November 2014.

1. Description of Test BOP Control Hose (Ref. to drawing No. BOP Hose ½" 5000PSI Date 10.23.2018)

BOP Control Hose Manufacturer	Luohe Letone Hydraulics Technology Co., Ltd.
BOP Control Hose Type	1.5 ACU
API & Class	½" & 5000 Psi
Serial No.	1320011

2. Other Qualification
This test certificate is based on the test procedure of section 14.8.2 of the API Specification 16D Third Edition, November 2018. Test details refer to test Report No. 2018G033 dated 2019.12.2.

Shanghai
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Form 1123 (2017.07)

JYCX

武器装备质量管理体系认证证书

注册号：21 QJ3 0467 R1M

兹证明：

漯河利通液压科技股份有限公司

注册地址/邮编：河南省漯河经济开发区民营工业园/462000
经营地址/邮编：河南省漯河经济开发区东方红 88 号/462000
质量管理体系符合：
GJB 9001C－2017
该质量管理体系适用于：
橡胶软管及软管组合件、橡胶密封件的设计、开发、生产和服务；软管接头的生产和服务

本证书有效性体现是证机构的定期监管获得保持，与本公司签发的认证决定通知书合并使用方可有效，证书信息查询请登录国家认证认可监督管理委员会网站中国认证认可信息公示平台 http://cx.cnca.cn/ 查询。

发证日期：2021 年 05 月 31 日
有效期至：2024 年 05 月 30 日
总经理：

由国际科学技术工业委员会委员决（2001）55号文授权
由国家国际科技工业局科工人（2020）366号文授权

北京军友诚信检测认证有限公司
北京市西城区月坛北街3号（100861）
www.jyxrz.com

JYCX

质量管理体系认证证书

注册号：070 21 Q3 0169 R0M

兹证明：

漯河利通液压科技股份有限公司

统一社会信用代码：91411100749277407
注册地址/邮编：河南省漯河经济开发区民营工业园/462000
经营地址/邮编：河南省漯河经济开发区东方红 88 号/462000
质量管理体系符合：
GB/T 19001－2016/ISO 9001:2015
该质量管理体系适用于：
橡胶软管及软管组合件、橡胶密封件的设计、开发、生产和服务；软管接头的生产和服务

本证书有效性体现是证机构的定期监管获得保持，与本公司签发的认证决定通知书合并使用方可有效，证书信息查询请登录国家认证认可监督管理委员会网站中国认证认可信息公示平台 http://cx.cnca.cn/ 查询。

初次发证日期：2021 年 05 月 31 日
发证日期：2021 年 05 月 31 日
有效期至：2024 年 05 月 30 日
总经理：

IAF CNAS

北京军友诚信检测认证有限公司
北京市西城区月坛北街3号（100861）

DNV·GL

Certificate No: TAP000026E

TYPE APPROVAL CERTIFICATE

This is to certify:
That the flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
LTSA699-18C, LTSA699-28C

Issued to
Luohe Letone Hydraulics Technology Co.,Ltd.
Luohe, Henan Province,P.R., China

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :
Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type:	Temperature range:	Max. working press.:	Sizes:
LTSA699-18C	-40°C to +120°C	40 to 280 bar	see certificate
LTSA699-28C	-40°C to +120°C	70 to 420 bar	see certificate

Issued at Hamburg on 2021-02-19

This Certificate is valid until 2026-02-18.
DNV GL local station: Wuhan NB & CMC

Approval Engineer: Christof Kotzmann-Bendrien

For DNV GL
Digital Signature Date: Chief
London DNV GL SE Hamburg, Germany
Expiry Date: 2021-02-19

Olaf Drewes
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following their mandatory law, the liability of DNV GL AS and/or any of its subsidiaries and affiliates (collectively "DNV GL") for any direct or indirect loss or damage in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Form code: TA 252 Revision: 2020-02 www.dnvgl.com Page 1 of 4

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NSF ISR

认证证书

兹证明：

漯河利通液压科技股份有限公司

IATF 16949:2016

认证范围：
橡胶软管及其组件的设计和制造

证书有效性可在国际注册登记处查询：www.nsfisr.com

NSF International Strategic Registrations

Certificate of Registration

This certifies that the Quality Management System of
Luohe Letone Hydraulics Technology Co., Ltd.
No.888,Dongjinglong Road, Private Industrial Park, Luohe Economy Development Zone, Luohe City, Henan Province, China 462000
Has been assessed by NSF ISR and found to be in conformance to the following standard(s):
IATF 16949:2016

Scope of Registration
Design and Manufacturing of Rubber Hose and Rubber Seal

IATF Certificate Number:	0392160
Certificate Number:	1 TOA7006001
Certificate Issue Date:	22-APR-2021
Registration Date:	22-APR-2021
Expiration Date*:	28-APR-2024

Jennifer Wentworth, Global Managing Director

NSF International Strategic Registrations
789 North Dixboro Road, Ann Arbor, Michigan 48105 (800) 673-6275 www.nsf-isr.org

*Certificate expiration date is a calendar date. The certificate is valid until 24:00 of the stated expiration date.
Product liability insurance coverage is not a requirement of this registration and is not verified during audits.

ims
International certification

职业健康安全管理体系认证证书

漯河利通液压科技股份有限公司

统一社会信用代码：91411100749277407

注册地址：中国河南省漯河经济开发区民营工业园

经营地址：中国河南省漯河经济开发区民营工业园

职业健康安全管理体系符合下列标准要求

GB/T45001-2020/ISO45001:2018

认证范围
高中低压橡胶软管及软管组合件、石油钻采软管及软管总成件、橡胶复合软管及软管总成件的研发、生产及相关管理活动

认证证书编号：0220101R
初次发证日期：2020-06-30
证书有效日期：2020-06-29

证书签发人

证书有效期以，每年次进行一次监督审核，且两次监督间隔时间不得超过 12 个月，获证组织必须连续接受监督审核并保持合格状态方为有效期。有关监督审核合格证，NB 认证证书上加贴合格标志。证书信息可在公司官网（www.qualityhrs.com）查询，也可在国家认证认可监督管理委员会官方网站（www.cnca.gov.cn）查询。

上海质信安认证服务有限公司
上海市长宁区淞沪路 848 号 1020 室 联系电话：021-61809872

ims
International certification

环境管理体系认证证书

漯河利通液压科技股份有限公司

统一社会信用代码/组织机构代码：91411100749277407

注册地址：中国河南省漯河经济开发区民营工业园

审核地址：中国河南省漯河经济开发区民营工业园

环境管理体系符合下列标准要求

GB/T24001-2016/ISO14001:2015

认证范围
高中低压橡胶软管及软管组合件、石油钻采软管及软管总成件、橡胶复合软管及软管总成件的研发、生产及相关管理活动

认证证书编号：E2000002
初次发证日期：2020-06-29
证书有效日期：2020-06-29
证书有效期至：2023-06-28

证书签发人

本证书有效性可在国家认证认可监督管理委员会官方网站（www.cnca.gov.cn）查询。

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ДОБРОВОЛЬНАЯ СЕРТИФИКАЦИЯ ГОСТ Р

СЕРТИФИКАТ СООТВЕТСТВИЯ

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ОРГАН ПО СЕРТИФИКАЦИИ

ПРОДУКЦИЯ

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ

ИЗГОТОВИТЕЛЬ
LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD.
Местонахождение: Farsh, Private Industrial Park, Economy Development Area, Luohe City, Henan Province , China

СЕРТИФИКАТ ВЫДАН
LUOHE LETONE HYDRAULICS TECHNOLOGY CO.,LTD.
Местонахождение: Farsh, Private Industrial Park, Economy Development Area, Luohe City, Henan Province , China

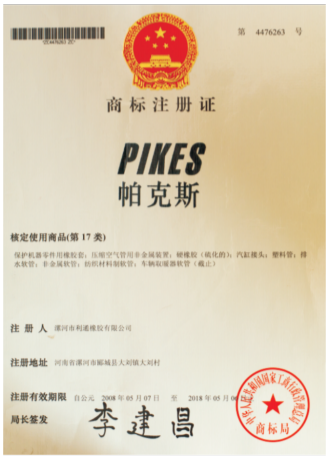
НА ОСНОВАНИИ

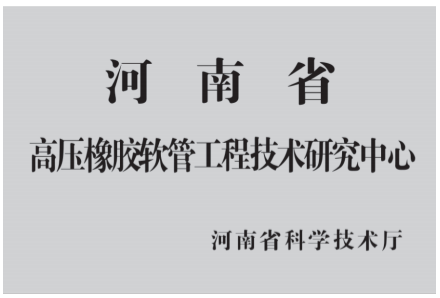
ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

Руководитель органа
Эксперт

COMPANY HONOR

企业荣誉 成为全球流体技术产业领航者





工业软管生产车间
Industrial Hose Workshop

工业软管生产线
Industrial Hose Production Line

工业软管生产线
Industrial Hose Production Line

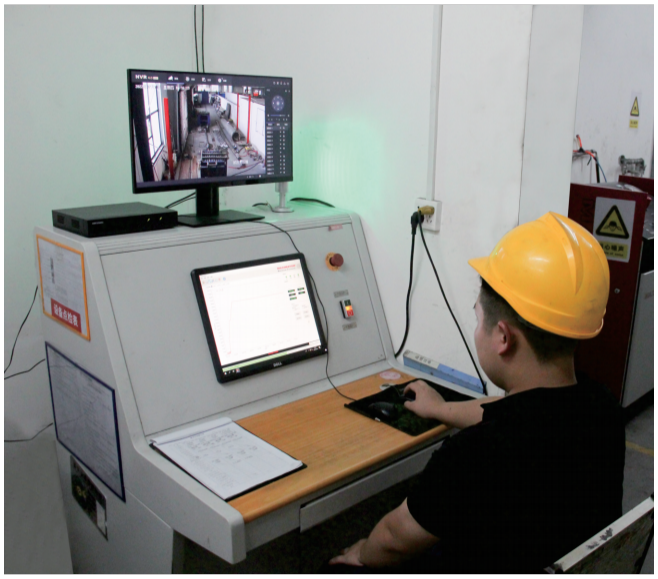
VP 钢丝缠绕生产线
VP Steel Wire Spiral Production Line

大口径钢丝缠绕生产线
Big Diameter Steel Wire Spiral Production Line

工业软管总成扣压工序
Assembly Process

利通科技检测中心对利通科技所使用及生产的原材料、半成品及成品的质量检验负责，力求从各个环节杜绝质量问题，为用户提供优质产品。另一方面，利通科技检测中心完善的硬件设施也为产品研发迭代提供了有利的条件。利通科技检测中心目前设有：原材料分析室、半成品检测试验室、成品检测试验室、脉冲试验室、爆破试验室、总成拔脱试验室、化学分析室、物理性能试验室、盐雾试验室、耐火试验室、低温试验室、耐磨试验室、阻燃试验室、原子吸收试验室、影像测量室等多个高水准试验室，可实现对混炼胶、钢丝、橡胶软管、连接件、总成等的全方位检测试验，为产品制造与技术创新成果转化提供了保障。

The main function of Letone Testing Center is to ensure the raw materials, semi-finished products and finished products used and produced by Letone are qualified. The hardware facilities of Letone Testing Center provides favorable conditions for its product development. At present, Letone Testing Center has laboratories for raw materials test, semi-finished product & finished product test, impulse test, blasting test, assembly extraction test, chemical analysis, physical performance test, salt spray test, fire-resistant test, low-temperature test, abrasion-resistant test, flame retardant test, atomic absorption, image measuring, etc., which can make comprehensive tests on rubber compound, steel wire, rubber hose, hose connection, assembly and so on.



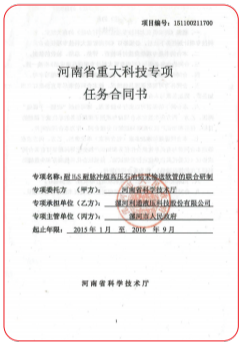
超高压工业软管总成试压工序
Pressure Test for Industrial Hose Assemblies

脉冲试验
Impulse Test

耐火试验
Fire Test

化学分析室
Chemical Analysis Laboratory

橡胶物理性能试验室
Physical Performance Laboratory

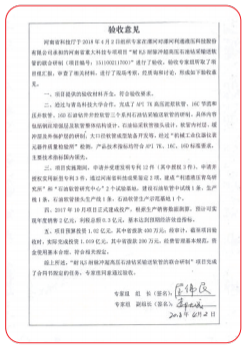


项目编号：151100211700

河南省重大科技专项
任务合同书

专项名称：耐H2S耐脉冲超高压石油钻采输送软管的联合研制
专项委托方（甲方）：河南省科学技术厅
专项承担单位（乙方）：郑州利通液压科技股份有限公司
专项主管单位（四方）：郑州市人民政府
起止年限：2015年1月 至 2016年9月

河南省科学技术厅



验收意见

河南省科技厅于2018年4月2日组织专家在郑州对郑州利通液压科技股份有限公司承担的河南省重大科技专项项目“耐H2S耐脉冲超高压石油钻采输送软管的联合研制（项目编号：151100211700）”进行了验收。验收专家组听取了项目组汇报，审查了相关材料，进行了现场考察，经质询讨论，形成如下验收意见。

一、项目提供的验收材料齐全，符合验收要求。

二、通过与青岛科技大学合作，完成了API 7K高压泥浆软管、API 16C柔性节流和压井管汇、API 16D BOP井控软管三个系列石油钻采输送软管的研制，具体内容包括钢丝增强层及软管整体结构设计、石油钻采软管接头设计、软管内衬层、缓冲层及外保护层的研制、大口径软管成型装备开发等。经过“机械工业仪器仪表元器件质量检验所”检测，产品技术指标均符合API 7K、16C、16D标准要求，主要技术指标达国内一流。

三、项目实施期间，申请并受理发明专利12件（其中授权3件），申请并授权实用新型专利3件，通过河南省科技成果鉴定2项，建成“利通液压青岛研究所”和“石油钻采管研究中心”2个试验基地，建设石油钻采管中试线1条，生产线1条，石油钻采接头生产线1条，石油钻采生产示范基地1个。

四、2017年10月项目正式建成投产，根据生产销售数据测算，预计可实现年度销售2亿元，利润总额0.3亿元，带来显著经济效益指标。

五、项目投资预算1.02亿元，其中省拨款400万元，自筹计，最终项目实际到位，实际完成投资1.019亿元，其中省拨款200万元，经费管理基本规范，资金使用基本合理，符合相关规定。

综上所述，“耐H2S耐脉冲超高压石油钻采输送软管的联合研制”项目完成了合同约定的任务，专家组同意通过验收。

专家组 组长（签名）
专家组 副组长（签名）
2018年4月2日

2018年12月12日，河南省科技厅组织专家对利通科技承担的河南省重大科技专项“耐H_2S耐脉冲超高压石油钻采输送软管的联合研制项目”完成情况进行了考察并以高度评价完成了验收。通过与青岛科技大学的合作，利通科技完成了 API 7K高压水泥软管、API 16C柔性节流和压井管汇、API 16D BOP井控软管三个系列石油钻采输送软管的研制。具体内容包括钢丝增强层及软管整体结构设计、石油钻采软管接头设计、软管内衬层、缓冲层及外保护层的研制、大口径软管成型装备开发等。经过“机械工业仪器仪表元器件质量检验所”检测，产品技术指标均符合API 7K、API 16C、API 16D标准要求。

On December 12, 2018, the Department of Science and Technology of Henan Province organized an expert team investigation on the completion of the provincial level major science and technology special project “Joint Development Project of H_2S and Pulse Resistant Ultra-High Pressure Oil Drilling Hose” undertaken by Letone and gave the approval of it. Through the cooperation with Qingdao University of Science and Technology, Letone has completed the development of three series of oil drilling hoses, namely, API 7K high-pressure cementing hose, API 16C flexible choke and kill line and API 16D BOP control hose. The specific contents include the design of steel wire reinforced layer and hose overall structure, the design of oil drilling hose connectors, the R&D of hose inner liner, buffer layer and outer protective layer, and the development of large diameter hose forming equipment. According to the testing report issued by the “Quality Inspection Institute of Mechanical Industry Instruments and Components", the technical indicators of the products meet the requirements of API 7K, API 16C and API 16D, and the main technical indicators cut the edge in China.

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LT 301 D | API Spec. 7K FSL 1 FSL 2 | ABS

旋转钻井和减震软管

ROTARY DRILLING AND VIBRATOR HOSE

应用范围：钻井、固井、修井作业中立管上端与顶部驱动器/旋转装置之间和泵与立管下端之间的柔性连接，在石油钻探和勘探工作中以高压泵送泥浆。

软管结构

内层：合成橡胶/HNBR/UPE/PTFE

增强层：多层缠绕的高强超柔钢丝

外胶层：耐磨、耐天候合成橡胶

温度范围：-20°C~+121°C（-4°F~+250°F）

接头类型：整体由壬或整体法兰或其他形式

可定制等通径软管内层

Application: Flexible connection between the upper end of the standpipe and the top drive/swivel and between the pump and the lower end of the standpipe for pumping mud at high pressure in oil drilling, cementing, and well workover operations .

Hose Construction

Inner Tube: sythentic rubber/HNBR/UPE/PTFE

Reinforcement:multi-spiraled high tensile super flexible steel wire

Outer Layer: abrasion and weather resistant synthetic rubber

Temperature Range: -20°C~+121°C（-4°F~+250°F）

Connector: integral union, integral flange, or other connector types

Full bore can be customized based on the requirements

压力等级 PRESSURE LEVEL Psi	内径 I.D. in	外径 O.D. mm	工作压力 W.P. Psi	试验压力 P.P. Psi	最小爆破压力 Min.B.P. Psi	最小弯曲半径 Min.B.R. mm	重量 W.T kg/m
1500 A级Grade A	2	68	1500	2250	3750	800	4.3
	2 1/2	84	1500	2250	3750	800	5.6
2000 B级Grade B	2	68	2000	3000	5000	800	4.3
	2 1/2	84	2000	3000	5000	800	5.6
	3	97	2000	3000	5000	950	6.5
	3 1/2	113	2000	3000	5000	1000	8.5
	4	127	2000	3000	5000	1000	10.4
	5	157	2000	3000	5000	1200	14.0
	6	183	2000	3000	5000	1300	18.0
4000 C级Grade C	2	72	4000	6000	10000	800	6.4
	2 1/2	87	4000	6000	10000	800	8.7
	3	102	4000	6000	10000	1000	11.1
	3 1/2	119	4000	6000	10000	1200	14.4
	4	132	4000	6000	10000	1200	16.0
	5	162	4000	6000	10000	1400	24.5
	6	194	4000	6000	10000	1500	33
5000 D级Grade D	2	75	5000	7500	12500	800	6.4
	2 1/2	90	5000	7500	12500	800	8.7
	3	104	5000	7500	12500	1000	11.1
	3 1/2	121	5000	7500	12500	1200	14.4
	4	134	5000	7500	12500	1200	16.0
	5	164	5000	7500	12500	1400	24.5
	6	196	5000	7500	12500	1600	33
7500 E级Grade E	2	77	7500	11250	18750	900	8.5
	2 1/2	94	7500	11250	18750	1000	10.5
	3	110	7500	11250	18750	1000	18.5
	3 1/2	128	7500	11250	18750	1200	20
	4	150	7500	11250	18750	1400	30
	5	185	7500	11250	18750	1600	49
	6	212	7500	11250	18750	1600	60

LT 301 F

超耐磨酸化压裂软管

SUPER ABRASION RESISTANT FRAC HOSE

应用范围:完井作业中的酸化压裂、加砂压裂、水力压裂管线，在高压下输送水基、油基、泡沫、酸基等压裂液。

软管结构
内层:UPE和合成橡胶
内径类型:全流量
增强层:多层缠绕的高强超柔钢丝
外胶层:耐磨、耐天候合成橡胶
温度范围:-29°C~+100°C (-20°F~+212 °F)
接头类型:整体由壬或整体法兰或其他形式

Application: Flexible line using for delivery water-based, oil-based, acid-based and foam fracturing fluids under high pressure in acid, sand and hydraulic fracturing works.

Hose Construction
Inner Tube: UPE and sythentic rubber
Tube Type: full flow
Reinforcement: multi-spiraled high tensile super flexible steel wire
Outer Layer: abrasion and weather resistant synthetic rubber
Temperature Range: -29°C~+100°C (-20°F~+212°F)
Connector: integral union , integral flange, or other connector types

规格型号 Size	内径 I.D.	外径 O.D.	工作压力 W.P.	实验压力 P.P.	最小弯曲半径 Min.B.R.	重量 W.T	流量 Volume		接头重量 Connector W.T	连接形式 Connection Type
inch	mm	mm	Psi	Psi	m	kg/m	bbl/min	m³/min	kg	
2"	45	95	15000	22500	1.4	18	9	1.46	53	3"FIG1502锤击由壬或 3 1/16"15K API 法兰连接 3" figure 1502 hammer union or 3 1/16" 15K API flange
	51	103	15000	22500	1.4	20	12	1.91	55	
2-1/2"	58	121	15000	22500	1.5	24	14.8	2.34	57	
	64	128	15000	22500	1.5	27	18.5	2.90	58	
3"	70	135	15000	22500	1.6	30	22	3.50	60	
	76	141	15000	22500	1.6	33	26	4.17	65	
4"	89	165	15000	22500	2.0	50	35.8	5.70	75	4"FIG1502锤击由壬或4 1/16"15K API 法兰连接 4" figure1502 hammer union or 4 1/16" 15K API flange
	102	171	15000	22500	2.0	56	47	7.47	85	
5"	120	210	15000	22500	2.1	80	62.9	10	343	5 1/8"15K API 法兰连接 5 1/8" 15K API flange
	127	215	15000	22500	2.1	86	80	11.58	348	
	130	220	15000	22500	2.1	90	84	12.13	353	
5-1/2"	140	240	15000	22500	2.2	110	88.6	14.07	560	7 1/16"15K API 法兰连接 7 1/16"15K API flange
6"	150	250	15000	22500	2.3	125	105	16.68	680	
2"	44	106	20000	30000	1.5	24	9	1.46	60	2"FIG2002锤击由壬或3 1/16"20K API 法兰连接 2" figure 2002 hammer union or 3 1/16" 20K API flange
	51	112	20000	30000	1.5	26	12	1.91	65	
2-1/2"	57	126	20000	30000	1.6	32	14.8	2.34	70	2 1/2"FIG2002锤击由壬或3 1/16"20K API 法兰连接 2 1/2" figure 2002 hammer union or 3 1/16" 20K API flange
	64	133	20000	30000	1.6	36	18.5	2.90	78	
3"	69	142	20000	30000	1.7	40	22	3.50	85	3"FIG2002锤击由壬或3 1/16"20K API 法兰连接 3" figure 2002 hammer union or 3 1/16" 20K API flange
	76	145	20000	30000	1.7	42	26	4.17	98	

LT 301 C | API Spec. 7K FSL0 | ABS

高压水泥软管

HIGH PRESSURE CEMENTING HOSE

应用范围：作为固井管汇的柔性连接件，在高压下输送水基泥浆、油基泥浆、水泥等。

软管结构
内胶层：UPE和合成橡胶或HNBR
增强层：多层缠绕的高强超柔钢丝
外胶层：耐磨、耐天候合成橡胶
温度范围：-20°C~+121°C (-4°F~+250°F)
接头类型：整体由壬或整体法兰

Application: Flexible connection in the manifold for delivery water-based and oil-based cement slurries under high pressure.

Hose Construction
Inner Tube: UPE and sythentic rubber or HNBR
Reinforcement: multi-spiraled high tensile super flexible steel wire
Outer Layer: abrasion and weather resistant synthetic rubber
Temperature Range: -20°C~+121°C (-4°F~+250°F)
Connector: integral union or integral flange

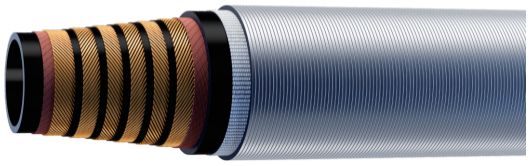
压力等级 PRESSURE LEVEL Psi	内径 I.D. in	外径 O.D. mm	工作压力 W.P. Psi	试验压力 P.P. Psi	最小爆破压力 Min.B.P. Psi	最小弯曲半径 Min.B.R. mm	重量 W.T kg/m
10000	2	83	10000	15000	22500	1000	10.8
	2 1/2	98	10000	15000	22500	1000	19.4
	3	129	10000	15000	22500	1400	28
	3 1/2	137	10000	15000	22500	1400	33
	4	154	10000	15000	22500	1600	38.5
15000	2	101	15000	22500	33750	1200	20.5
	3	125	15000	22500	33750	1500	36
20000	2	106	20000	30000	45000	1500	24
	3	142	20000	30000	45000	1700	44

LT 302 | API Spec. 16C FSL0 FSL1 FSL2 FSL3 | ABS

柔性节流和压井管线

FLEXIBLE CHOKE AND KILL LINE

应用范围：节流压井管汇等的柔性连接管线，在高压下输送含有硫化氢（H_2S）及其他危险气体的油气混合物及各种水基、油基、泡沫压井液等。



软管结构
内层：HNBR/UPE
内径类型：等通径
增强层：多层缠绕的高强超柔钢丝
外胶层：耐高温、耐火合成橡胶（耐+704°C明火30分钟）
外保护层：不锈钢铠装
温度范围：-29°C~+121°C（-20°F~+250°F）
接头类型：整体由壬或整体法兰

Application: Flexible connection in the chock and kill manifolds for delivery oil-gas mixture that containing hydrogen sulfide (H_2S) and other dangerous gases and various water-based, oil-based and foam killing fluids under high pressure.

Hose Construction
Inner Tube: HNBR/UPE
Bore Type: full bore
Reinforcement: multi-spiraled high tensile super flexible steel wire
Outer Layer: high temperature and fire resistant synthetic rubber (resistant to 704 °C open fire for 30 minutes)
Protective Layer: stainless steel armor
Temperature Range: -29°C~+121°C（-20°F~+250°F）
Connector: integral union or integral flange

压力等级 PRESSURE LEVEL	内径 I.D.	外径 O.D.	工作压力 W.P.	试验压力 P.P.	最小爆破压力 Min. B.P.	最小弯曲半径 Min.B.R.	重量 W.T
Psi	in	mm	Psi	Psi	Psi	mm	kg/m
5000	2	89	5000	7500	11250	1000	9.5
	3	115	5000	7500	11250	1200	14.8
	3 1/2	133	5000	7500	11250	1400	20
	4	147	5000	7500	11250	1600	30
10000	2	96	10000	15000	22500	1200	15
	2 1/2	126	10000	15000	22500	1600	25
	3	140	10000	15000	22500	1600	33
	4	167	10000	15000	22500	1800	52
15000	2	101	15000	22500	33750	1400	21
	3	141	15000	22500	33750	1600	33
	4	171	15000	22500	33750	2000	56

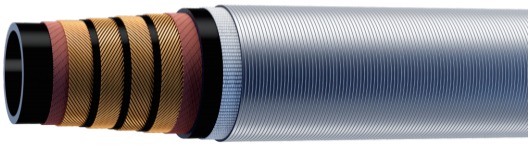
LT 303 | API Spec. 16D | Lloyds

BOP 井控软管

BOP CONTROL HOSE

应用范围：在井控系统中用于远程控制防喷器开合。

软管结构
内胶层： NBR
内管类型： 等通径
增强层： 4层缠绕的高强超柔钢丝
外胶层： 耐高温、耐火合成橡胶
外保护层： 不锈钢铠装
温度范围： -40°C~+100°C（-40°F~+212°F）
耐火符合API Spec. 16D, 704°C×5分钟耐火测试无泄漏。



Application: Hydraulic control line for remotely control the blowout preventer (BOP) at high pressure.

Hose Construction
Inner Tube: NBR
Reinforcement: 4 plies of spiraled high tensile super flexible steel wire
Outer Layer: high temperature and fire resistant synthetic rubber
Protective Layer: stainless steel armor
Temperature Range: -40°C~+100°C（-40°F~+212°F）
Fire resistance meets API Spec. 16D, 704°C×5min

软管内径 I.D.	工作压力 W.P.	试验压力 P.P.	最小爆破压力 Min.B.P.	最小弯曲半径 Min.B.R.	重量 W.T
in	Psi	Psi	Psi	mm	kg/m
1/2	5000	7500	15000	300	1.9
3/4	5000	7500	15000	400	2.7
1	5000	7500	15000	500	3.6
1 1/2	5000	7500	15000	700	5.3
2	5000	7500	15000	800	7.2

LT 304

多功能原油输送软管

MULTI - PURPOSE CRUDE OIL HOSE

应用范围：适用于输送燃油、原油、汽油等石油产品，高分子复合材料内附层使该软管具有强大的耐腐蚀、高润滑等特性，其极佳的化学稳定性使其不与石油产品中的化学物质发生反应，保证流体介质安全高效的运输。

软管结构
内胶层：高分子复合材料
增强层：多层帘子布缠绕及高灵活度螺旋钢丝
外胶层：合成橡胶
温度范围：-40°C~+180°C（-40°F~+356°F）；
压力与尺寸均可定制

Application: The hose is suitable for delivering petroleum products such as fuel oil, crude oil, gasoline, etc. The hose inner layer is made of polymer composites, which makes the hose with strong corrosion resistance and high lubrication characteristics. Its excellent chemical stability prevents it from reacting with chemical substances in petroleum products, ensuring safe and efficient transportation of the medium.

Hose Construction
Inner Tube: polymer composites
Reinforcement: multi-spiraled high tensile texile cords and highly flexible steel helix wire
Outer Layer: sythentic rubber
Temperature Range: -40°C~+180°C（-40°F~+356°F）；
The hose pressure and inner diameter can be customized based on the requirements

软管内径 I.D.		工作压力 W.P.	安全系数 Safety Factor
in	mm	MPa	
2	51	2~35	2.5倍
2 1/2	63	2~35	2.5倍
3	76	2~35	2.5倍
3 1/2	90	2~35	2.5倍
4	102	2~35	2.5倍
5	127	2~35	2.5倍
6	152	2~35	2.5倍

LT 1202L

UPE低压多功能软管

UPE LOW PRESSURE MULTIPURPOSE HOSE

应用范围：此产品广泛应用于化工、钢铁、建筑、食品、医药等领域，其具有超耐磨、耐腐蚀的产品特性与高饱和度内衬层，几乎不与任何物质（油脂、腐蚀性化学物等）起反应，绝对中性的气味也决定着其适用于食品饮料及医药行业。

Application: widely apply to industries like chemical, iron and steel smelting, construction, F&B, and medication etc. It is rarely reacting with any substance (oil, fats, corrosion chemicals etc.) because of its highly saturation materials. Its neutral taste and odor illustrates that it is safe to use in the F&B and medication industries.

软管结构

内胶层：UPE及EPDM合成橡胶

增强层：高张力合成纤维缠绕及高灵活度螺旋钢丝缠绕

外胶层：黑色或蓝色EPDM合成橡胶（可外覆UPE耐磨层）

温度范围：-30°C～82°C（-22°F~180°F）

压力与尺寸均可定制

Hose Construction

Inner Tube: UPE and EPDM synthetic rubber

Reinforcement: multi-spiraled high tensile synthetic fibers and highly flexible steel helix wire

Outer Layer: black or blue EPDM synthetic rubber (UPE layer is available)

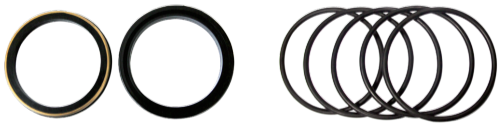
Temperature Range: -30°C~82°C (-22°F~180°F)

The hose pressure and inner diameter can be customized based on the requirements

软管内径 I.D		软管外径 O.D		工作压力 W.P	最小爆破压力 Min.B.P	最小弯曲半径 Min.B.R	参考重量 W.T
in	mm	in	mm	psi	psi	mm	kg/m
1/2	13	0.89	22.5	290	870	130	0.34
5/8	16	1.04	26.5	290	870	150	0.44
3/4	19	1.17	29.7	290	870	180	0.52
1	25	1.39	35.2	290	870	205	0.52
1-1/4	32	1.77	45	290	870	250	0.95
1-1/2	38	2.04	52	290	870	300	1.2
2	51	2.64	67	300	750	400	1.65
3	76	3.82	97	300	750	570	2.75
4	102	4.84	123	300	750	750	4.65

橡塑密封件

RUBBER & PLASTIC SEALS



产品信息:

材质:NBR/HNBR/EPDM/FKM

温度范围:-55°C~+200°C (-67°F~+392°F)

产品特性:耐高温、耐腐蚀、耐油，满足食品级密封要求

应用范围:适用于密封液压油、腐蚀性溶剂(强酸、强碱等)、蒸汽、水等介质。广泛应用于石油、化工、工程机械、煤矿机械、食品机械、电力设备、冶金设备、制冷设备、工程盾构等行业。

Product Information:

Materials: NBR/HNBR/EPDM/FKM

Temperature Range: -55°C~+200°C (-67°F~+392°F)

Product Features: high temperature resistance, corrosion resistance, oil resistance, food grade product

Application : Suitable for the sealing of medium like hydraulic oil, corrosive solvent (such as strong acid and strong alkali), steam and water, etc. The products widely apply to petrochemical, construction machinery, coal mining machinery, food machinery, electrical equipment, metallurgical equipment, refrigeration equipment, shields machine and other industries.

锤击由壬

HAMMER UNIONS

Figure 602 Threaded 6000 PSI CWP

对金属密封面特别设计的唇形弹性体密封保护金属，同时减少了线流湍流

Specially Designed Lip Type Elastomer Seal Protects Metal to Metal Sealing Surface and Reduces Line Flow Turbulence

部件号 Part Number	规格（英寸） Size (in.)	单个重量（公斤） Weight Each (KG)	标准装箱数量 Standard Carton
HUT602-1	1	1.70	4
HUT602-2	2	5.85	4
HUT602-3	3	10.34	2
HUT602-4	4	16.80	1

Figure 1002 Butt Weld 10,000 PSI CWP

对金属密封面特别设计的唇形弹性体密封保护金属，同时减少了线流湍流

Specially Designed Lip Type Elastomer Seal Protects Metal to Metal Sealing Surface and Reduces Line Flow Turbulence

部件号 Part Number	规格（英寸） Size (in.)	单个重量（公斤） Weight Each (KG)	标准装箱数量 Standard Carton
HUW1002-2	2	6.33	4
HUW1002-3	3	11.70	2
HUW1002-4	4	17.01	1

Figure 602 Butt Weld 6000 PSI CWP

对金属密封面特别设计的唇形弹性体密封保护金属，同时减少了线流湍流

Specially Designed Lip Type Elastomer Seal Protects Metal to Metal Sealing Surface and Reduces Line Flow Turbulence

部件号 Part Number	规格（英寸） Size (in.)	单个重量（公斤） Weight Each (KG)	标准装箱数量 Standard Carton
HUW602-2	2	6.28	4
HUW602-3	3	11.93	2
HUW602-4	4	17.19	1

Figure 1502 Butt Weld 15,000 PSI CWP

对金属密封面特别设计的唇形弹性体密封保护金属，同时减少了线流湍流

Specially Designed Lip Type Elastomer Seal Protects Metal to Metal Sealing Surface and Reduces Line Flow Turbulence

部件号 Part Number	规格（英寸） Size (in.)	单个重量（公斤） Weight Each (KG)	标准装箱数量 Standard Carton
HUW1502-2	2	9.07	2
HUW1502-3	3	13.20	2
HUW1502-4	4	35.63	1

LT301F超耐磨酸化压裂软管应用案例

LT301F SUPER ABRASION RESISTANT FRAC HOSE CASE STUDYS

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Letone Effective-Drilling solution on a project in Tarim Oilfield in Xinjiang, China.

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