

2016.8
第45卷

中国科技核心期刊（中国科技论文统计源期刊）

美国化学文摘收录期刊

中国期刊全文数据库（CJFD）收录刊

RCCSE中国核心（扩展版）学术期刊

● 中国学术期刊综合评价数据库（CAJCED）统计源期刊

● 《中国石油文摘》收录刊

● 全国机械行业优秀科技期刊一等奖

● 全国石油和化工行业优秀期刊一等奖

ISSN 1001-3482
CODEN SKJIE3

石油矿场机械

Oil Field Equipment

主办：兰州石油机械研究所
中国石油和石油化工设备工业协会



中国石油宝鸡石油机械有限责任公司
CNPC BAOJI OILFIELD MACHINERY CO., LTD.

哪里就有宝石机械的产品和服务



锻造生产单元



年锻件生产能力30000吨，
生产锻件最大重量达40吨，吊
环年生产能力1800副。

铸造生产单元



配备进口意大利移动式混砂机和德国砂处理系统，具备年产铸钢件10000吨、钢锭10000吨的生产能力。

热处理生产单元



拥有国际先进的底装料电加热立式多用炉、可控气氛多用炉，年热处理能力45000吨，配备先进的质量检测、金相分析仪器及辅助设备。

哪里有石油

宝鸡石油机械有限责任公司热工分
公司入选国家工业和信息化部公告的全
国《铸造行业准入条件》企业名单。



ISSN 1001-3482



9 771001 348163

万方数据

<http://www.bomco.cn>

石油矿场机械

目 次

第8期(总第329期)第45卷

2016年8月25日出版

专题研究	• FLNG发展及应用初探	杜庆贵,谢彬,谢文会,朱小松,王俊荣,冯加果(1)
	• 深水半潜式平台井架动边界问题研究	李鹏举,张志伟,张青锋,侯敏,张友会(7)
	• 螺杆钻具球铰接万向轴失效分析	任宪可,王春阳,夏秀文,陆天明(13)
	• ZJ70DBT钻机直立搬运特性研究	杨鹏,高翔,李全星,侯敏,张长辉,李毅平(17)
	• 基于VMD的旋转机械故障诊断方法研究	白堂博,张来斌,唐满红,李双琴(22)
	• 带压作业装置技术发展	张东平,张建,纪风杰(27)
设计计算	• 水泥环缺损时套管损坏有限元分析	崔明月,张颖,杨军征,练章华,屈超豫(31)
	• 基于SAFI的液压缸起升式井架起升过程分析	陈洪光,许益民,周桂智(36)
	• 数字化抽油机仿真平台设计	赵新胜,王丽珺,尤小荣,罗颖萍(40)
	• 新型长冲程液力加压推进器设计	贾洋(45)
试验研究	• 喷射式套管气回收装置设计与试验研究	赵金睿,王同吉,赵军友,王秀会,左鹏(49)
	• 压裂滑套耐磨性能试验评价	冯飞,冯长青,樊晨,任勇,王在强,桂捷,赵粉霞(54)
开发利用	• 机械式顶驱下套管装置研制	马晓伟(58)
	• 液动旋冲钻井工具研制	郑瑞强,李玉海(61)
	• 新型JC70DB型绞车研制	徐家雄,王建川,雒建胜,李飞,张洪,李永红(65)
	• 新型直驱式F1300型泥浆泵组研制	郝子轩,王小江,高敏,孔相国,孙丽丽,王义朋(68)
	• 射孔分层合采联作管柱研究与应用	李志广,闫永维,李风涛,张子佳,李川(71)
	• 大通径提挂泄油器研制	黄晓蒙,肖国华,高文明,陈雷,王海全(74)
	• K344型可控封隔器及压裂滑套研制	程智远,骆劲羽,孙晓飞,秦诗涛,宗庆伟,沈文龙(77)
	• 陕北油田水平井轨迹控制技术研究与应用	张进祥,李攀(81)
	• 超大排量压裂液连续混配装置研制与应用	任勇强,徐克彬,提云,白田增,杨小涛,徐昊洋,刘雨薇(85)
	• 压裂施工装备配置与井场布置研究	邱宗斌,陈江鸿,侯光东(90)
	• 石油钻机柴油机自动供油装置研制	魏伟,张艳军,王景源(93)
	• 连续油管多级射孔技术在水平井A井的应用	王海东,唐凯,徐培刚,欧跃强,陈华彬,李奔驰(95)
	• 新型防喷脱接器研制与应用	郭永伟(98)
	• 下期目次预告	(30)
	• 投稿须知	(35)

期刊基本参数:CN62-1058/TE * 1972 * m * A4 * 100 * zh * P * ¥20.00 * 4200 * 25 * 2016-08

OIL FIELD EQUIPMENT(OFE)

(Started in 1972)

Vol. 45 № 8(Ser. 329, Monthly)

August 25, 2016

CONTENTS

• MONOGRAPHIC STUDY •

Preliminary Study on Development and Application of FLNG	DU Qinggui, XIE Bin, XIE Wenhui, ZHU Xiaosong, WANG Junrong, FENG Jiaguo(1)
Analysis on Dynamic Boundary of a Derrick on Dynamic Deepwater Semi-submersible Platform	LI Pengju, ZHANG Zhiwei, ZHANG Qingfeng, HOU Min, ZHANG Youhui(7)
Ball Inserted Universal Shaft of Down-hole Drilling Motor Failure Analysis	REN Xianke, WANG Chunyang, XIA Xiwen, LU Tianming(13)
Characteristic Research on the Vertical Movement of ZJ70DBT Drilling Rig	YANG Peng, GAO Xiang, LI Quanxing, HOU Min, ZHANG Changhui, LI Yiping(17)
Research on VMD Based on Fault Diagnosis Method for Rotating Machinery	BAI Tangbo, ZHANG Laibin, TANG Manhong, LI Shuangqin(22)
Technological Development of Snubbing Operation Equipment	ZHANG Dongping, ZHANG Jian, JI Fengjie(27)

• DESIGN AND CALCULATION •

Finite Element Analysis of Casing Damage with Defective Cement Sheath	CUI Mingyue, ZHANG Ying, YANG Junzheng, LIAN Zhanghua, QU Chaoyu(31)
Analysis of Mast Erection Process with Hydraulic Cylinder Based on SAIFI	CHEN Hongguang, XU Yimin, ZHOU Guizhi(36)
Design of Digital Simulation Deck for Pumping Unit	ZHAO Xinsheng, WANG Lijun, YOU Xiaorong, LUO Yingping(40)
Design of Long-stroke Hydraulic Pressure Propeller	JIA Yang(45)

• TEST STUDY •

Design and Test Research of an Injecting Case-gas Recovery Based on Fluent	ZHAO Jinrui, WANG Tongji, ZHAO Junyou, WANG Xuhui, ZUO Peng(49)
Experimental Evaluation of Wear Resistance of the Fracturing Sliding Sleeve	FENG Fei, FENG Changqing, FAN Cheng, REN Yong, WANG Zaiqiang, GUI Jie, ZHAO Fenxia(54)

• DEVELOPMENT AND APPLICATION •

Development of Mechanical Down Casing Device with Top Drive	MA Xiaowei(58)
Research and Application of Hydraulic Rotary Impacting Tool	ZHENG Ruiqiang, LI Yuhai(61)
Research of New Efficient JC70DB Drawworks	XU Jiaxiong, WANG Jianchuan, LUO Jiansheng, LI Fei, ZHANG Hong, LI Yonghong(65)
A New Direct-drive Type F1300 Mud Pump Assembly	HAO Zixuan, WANG Xiaojiang, GAO Min, KONG Xiangguo, SUN Lili, WANG Yipeng(68)
Research and Application of Integrate Operation Pipe String of Perforation and Multiple-zone Commingled Production	LI Zhiguang, YAN Yongwei, LI Fengtao, ZHANG Zijia, LI Chuan(71)
Development and Application of Large Bore Lift-draw Leaker	HUANG Xiaomeng, XIAO Guohua, GAO Wenming, CHEN Lei, WANG Haiquan(74)
Development of K344 Controllable Packer and Fracturing Sleeve	CHENG Zhiyuan, LUO Jinyu, SUN Xiaofei, QIN Shitao, ZONG Qingwei, SHEN Wenlong(77)
Research and Application of Trajectory Control Technology of Horizontal Well in Shanbei Oilfield	ZHANG Jinyang, LI Pan(81)
Research and Application of the Super-large Discharging Mixing System for Fracturing Fluid	REN Yongqiang, XU Kebin, TI Yun, BAI Tianzeng, YANG Xiaotao, XU Haoyang, LIU Yuwei(85)
Research on Configuration and Site Layout of Fracturing Equipment	QIU Zongbin, CHEN Jianghong, HOU Guangdong(90)
Automatic Oil Supply Device of Drilling Rig Diesel Research	WEI Wei, ZHANG Yanjun, WANG Jingyuan(93)
Application and Technology of Coiled Tubing Cluster Perforationin A Horizontal Well	WANG Haidong, TANG Kai, XU Peigang, OU Yueqiang, CHEN Huabin, LI Benchi(95)
Application of New Type of BOP Off-connectors	GUO Yongwei(98)

中石化胜利石油工程有限公司钻井工艺研究院

Drilling Technology Research Institute of Shengli Petroleum Engineering Corporation, Sinopec (SLDTI)



中石化胜利石油工程有限公司钻井工艺研究院创建于1973年8月。主要从事石油钻完井、滩海石油工程新工艺、新技术、新材料、新装备的研究开发应用，钻井工程设计和技术服务。下设10个专业技术研究所、1个博士后工作分站、2个生产实验中心，配套形成了较完善的实验体系。先后取得ISO9001质量体系认证、API规范产品认证、HSE管理体系认证、海陆安全生产许可证、海洋工程及船舶设计资质，具有定向井水平井钻井工程技术、钻井液技术、钻井工程设计技术、取心技术、欠平衡和气体钻井技术5个中石化集团公司甲级资质。每年承担省部级以上科研课题40项左右。

经过长期的创新实践，实现了从经验钻井到科学钻井的跨越；从常规钻井到特殊工艺井钻井的跨越；从陆上钻井到海洋钻井的跨越；从面向本油田到服务全国、走向世界的跨越，沉淀了深厚的科技研发底蕴，形成了自强不息、百折不挠的传统精神和严谨求实、开放合作的办院特色，涌现出了以中国工程院院士顾心怿为代表的一大批优秀人才，造就了一支富有开拓进取精神和创新能力的科技队伍，取得了丰硕的科研成果，在胜利油田乃至中国石油发展史上留下了光辉的一页。

Founded in August ,1973, Drilling Technology Research Institute of Shengli Petroleum Engineering Corporation, Sinopec (SLDTI) , is mainly focus on research, development and application of new technologies, design and technical services involved in oil & gas drilling, well completion and offshore petroleum engineering. SLDTI consists of 10 research departments, 1 postdoctoral sub-workstation, 2 production testing centers. SLDTI has certifications of ISO9001, API, HSE, offshore & onshore safety production license, offshore engineering and vessel design qualification certification. SLDTI has been granted 5 Class A Qualifications by SINOPEC for directional and horizontal drilling engineering, drilling fluid, drilling engineering design, core drilling, and underbalanced/gas drilling. SLDTI undertakes over 40 scientific projects at provincial or national level annually.

After long-term innovative practices, SLDTI has realized the great leap from empirical drilling to scientific drilling, from land drilling to offshore drilling, from providing technical service to Shengli Oilfield and China to the world, and accumulated plenty of scientific research possessions. Many best talents full of pioneering spirit and innovative capability have emerged, represented by Gu Xinyi, member of Chinese Academy of Engineering. These great achievements have been remembered as a splendid chapter in Shengli Oilfield and even in the development history of China's petroleum industry.

地址：山东省东营市东营区北一路827号

电话：0546-8552321 8552292

传真：0546-8557495 邮编：257000

● **Drilling Technology Research Institute**