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取样式多相流分离计量技术

多相流作为一种复杂的流体形态,广泛存在于化工、冶金、能源、环保、轻工及军工等诸多领域。近年来随着石油天然气行业的快速发展,多相流计量逐步发展成为油气工业的关键技术之一,目前国内外多相流计量装置精度低、费用高、安全风险高,技术尚不够成熟。

中国石油工程建设有限公司西南分公司拥有取样式多相流分离计量技术,集成多项专利成果,并通过科技成果鉴定。该技术基于均相取样计量原理,采用气相分流均相取样方法进行单相流量计气/液计量,适应含气率 GVF 0 ~ 100%,高效防冲砂旋流分离装置分离效率达 95% 以上,较常规分离装置缩小 50%,计量精度气相 < ±5%、液相 < ±10%,优于国家标准集输计量精度要求。

取样式多相流分离计量技术已成功应用于土库曼斯坦阿姆河 B 区中部/东部气田冬季保供项目、长宁页岩气 H 26 平台、蜀南气矿高磨二期等工程中,解决了多相流计量的技术难点,开发了一种多相流体计量方法,形成了国内领先的适用于天然气田的气液多相流分离计量技术及一体化装置,填补了该领域空白。

(陈宇波　供稿)