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CenerTech

中海油能源发展股份有限公司工程技术分公司

HAI LOONG LIFT

人工举升产品手册

ARTIFICIAL LIFT PRODUCT MANUALS

公司介绍
Introduction

中海油能源发展股份有限公司工程技术分公司（简称“工程技术公司”）是一家为油气田勘探开发提供综合研究和专业技术服务的公司。公司总部设在天津市滨海新区，现有员工 5300 余人，总资产 30 亿元。

工程技术公司的主要业务包括油气田勘探开发综合技术研究，钻采综合技术服务，配套产品开发、生产及现场技术服务。公司持续以油气田增储上产为目标，以提高油气田勘探开发生产效率为核心，以技术驱动为主要动力，建设油田开采技术研发创新能力和一体化专业技术服务能力，努力成长为具有国际竞争力的工程技术公司。

CenerTech-Drilling & Production Co. is a pioneering services corporation which supplies comprehensive research and professional technical services for oil/gas field exploration and development. Headquartered in Binhai New Area of Tianjin. CenerTech-Drilling & Production Co. now owns total assets of RMB ￥3.0 billion and 5300 employees. CenerTech-Drilling & Production Co. mainly engages in comprehensive research, comprehensive drilling & production technical services, relevant products development & manufacture, and well site technical services for oil/gas field exploration & development. Taken more than 30 years of development concept of her two predecessors, CenerTech-Drilling & Production Co. shall build herself into an international leading company in energy technology service industry, by aiming at enhanced oil/gas recovery, helping clients increase oilfield production efficiency, and promoting technical innovation and comprehensive service capacity.

目录
CONTENTS

Part 1 第一部分 | 电泵井下设备 Electric Pump Downhole Equipment

潜油电机 Submersible Motor

规格/型号 Specifications/Model	BM375、BM456、BM540、BM562、BM738
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

潜油电机是潜油电泵的动力输入装置，通过多级离心泵旋转把油井中的井液举升到地表。潜油电机是鼠笼式三相异步电动机，其定子绕组形式一般为两极同心式绕组。潜油电机的整体外形呈圆形细长形状，其长度是直径的几十倍，其主要部件有：定子、转子、止推轴承及径向扶正支撑系统、油路循环系统等。该产品适用于5-1/2”及以上的套管，适用油井温度最高达到180℃，电机表面流速不小于3m/s。

本产品有多种规格型号供客户选择，可根据不同负载提供相匹配的电机，灵活串接使用。

Submersible motor is a power input device elevating well fluids back to the grounds through multistage submersible pump through multistage centrifugal pump rotations.Submersible motor is a 3-phase squirrel cage induction motor. The stator structuring is generally in the form of bipolar concentric windings. The length of an integrated elongated shape submersible motor is dozen times its diameter. Its main components are: determinant, rotor, thrust bearings and radial rotor bearing system as well as the oil circulation system. The instrument is for 5-l/2″ or more - casing. The highest applicable temperature is 180℃ with a motor surface velocity of not lower than 3.0 meter/second.

The submersible motors offer multiple specifications and models tailor made to flexibly match the requirements of motors in accordance to different loads and capacities.

● 结构尺寸 Structural Dimensions

系列 Series	375	456	540	562	738
最大外径 Maximum External Diameter(mm)	95	115.8	137.2	143	187
单节电机长度范围 Uninodal Motor Length Range(mm)	2190～6440	1527～9429	1690～9210	1750～9260	4520～10030

潜油保护器 Submersible Protector/Seal

规格/型号 Specifications/Model	BPR338、BPR387、BPR540、BPR675
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

保护器能提供最佳的有效保护，可防止井液进入电机，另外它还是电机的储油器，可以平衡电机内部和环形空间的压力，以及承担泵的轴向力等。

保护器有三种形式：沉降式、胶囊式和组合式。可根据实际需要进行优化选择。

沉降式保护器：利用液体比重和迷宫式结构使井液与电机油隔离,防止井液进入电机。

胶囊式保护器：用胶囊来实现井液与电机油的隔离，胶囊为一个弹性体，它与特殊的单向阀来实现电机的正常呼吸。

沉降式和胶囊式保护器主要由保护器头、止推轴承、滑板、机械密封、轴、沉降管、胶囊、 胶囊座、护轴管、底座等组成。

组合式保护器用通用标准部件组装成带若干个沉降单元和(或)胶囊式单元的多种结构形式来匹配个别的油井条件或用户需求。它允许根据特殊的井况条件选择适合的保护组合类型。

Providing best protection, preempt inflow of well fluid. Additionally, it is the motor oil reservoir and balances the pressures of the internal motor and annular space, and shoulders the axial force of the pumps.

There are three types of protectors: decanter, capsules and modular. Selection can be optimized according to actual needs.

Decanter protector: utilize liquid specific gravity, labyrinth structure to isolate well fluid and motor oil, preventing influx of well liquid from entering motor.

Capsule protector: utilize capsule as an elastic body to isolate well fluid and motor oil, interacting with a special one-way valve to facilitate normal motor respiration.

Decanter and capsule protector are mainly composed of protective head, thrust bearings, skateboards, mechanical seals, shafts; sedimentation tubes, capsules, capsule seats, supporting tube and pedestal.

Modular protector device is assembled with standardized components including various structured capsular-type units matching individual oil well conditions and end-user demands; allowing the selection of suitable combinations to meet the specific protection needs of wells.

● 产品通用材质及配置描述 General material and configuration description

分项 Sub item	常规材质配置 General material configuration	特殊井况配置 Special well condition configuration	备注 remarks
头座 Headstock	45#钢	2Cr13、304、316	可根据需要配置防砂型保护器 Sand proof mould protector can be provided as required
O圈 O-ring	HSN	AFLAS	
胶囊 capsule	HSN	AFLAS	
止推轴承 Thrust bearing	ZCuSn10-1	合金高承载止推 Alloy high load thrust	
壳体 housing	45#钢	9Cr1Mo、304、316	
轴 axis	monel k-500	Inconel	
注油阀 Oil filling valve	45#钢	304、Monel R-405	
丝堵 Plug	40Cr	Monel k-500	
花键套 Spline sleeve	1Cr18Ni9	Monel k-500	

产品温度等级 Product temperature class:120℃、150℃、180℃、204℃、232℃。

● 结构尺寸 Structural Dimensions

系列 Series	338	387/400	540	675
最大外径 Maximum External Diameter (mm)	85.8	98	130	172
轴径 Shaft diameter (in)	7/8	7/8	1-3/16	1-1/2
轴许用最大功率 HP @60Hz Maximum allowable shaft power HP @ 60Hz	256	256	637	1000
轴许用最大功率 HP @50Hz Maximum allowable shaft power HP @ 50Hz	213	213	531	833
标准止推轴承最大承载力 lbs @60Hz Maximum bearing capacity of standard thrust bearing lbs @ 60Hz	820	1300	2400	5500
标准止推轴承最大承载力 lbs @50Hz Maximum bearing capacity of standard thrust bearing lbs @ 50Hz	685	1000	2000	4580
标准止推轴承最大承载力 kg @60Hz Maximum bearing capacity of standard thrust bearing kg @ 60Hz	372	590	1089	2495
标准止推轴承最大承载力 kg @50Hz Maximum bearing capacity of standard thrust bearing kg @ 50Hz	311	454	907	2077
高承载止推轴承最大承载力 lbs @60Hz Maximum bearing capacity of high load thrust bearing lbs @ 60Hz	1600	3300	5500	
高承载止推轴承最大承载力 kg @60Hz Maximum bearing capacity of high load thrust bearing kg @ 60Hz	726	1497	2495	
高承载止推轴承最大承载力 lbs @50Hz Maximum bearing capacity of high load thrust bearing lbs @ 50Hz	1400	2750	4580	
高承载止推轴承最大承载力 kg @50Hz Maximum bearing capacity of high load thrust bearing kg @ 50Hz	635	1247	2077	

潜油泵 Submersible Pump

规格/型号 Specifications/Model	BP338、BP387、BP540、BP562　BP675
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

潜油泵由上、下泵头、泵轴、泵壳、叶轮、导壳、轴承架及连接系统等组成。该泵为多级串接式离心泵，每一级由一个旋转的叶轮和一个固定的导壳组成，泵潜没在井液中，井液在高速旋转的叶轮叶片的作用下，经过导壳进入下一级叶轮，使压力逐级叠加，最后通过油管输送到地面，经井口装置与地面集输系统汇合。

本产品可根据不同井况条件选择不同系列:

- 防垢系列，适用具有钙镁垢、钡锶垢的井况;
- 高温系列，适用井温不高于180℃的井况;
- 防腐系列，适用具有CO_2或H_2S腐蚀的井况;
- 防砂系列，适用于出砂井况。
- 本产品具有排量范围大、扬程高、对斜井适应性强、井口占用空间小、便于管理等特点，可根据所需排量，选择对应的叶导轮型号。

Submersible pumps are assembled with upper and lower pump heads, shafts, pump casings, impeller, diffuser, bearing bracket and connecting systems. The pump is a series of multistage centrifugal pumps connections. Each stage consists of a rotating impeller and a stationary diffuser. The pump is submerged in well fluid. The well fluid is guided into the next impeller under high speed blade rotation that sequentially increasing the pressure in the process and eventually delivered via tubing and wellheads to converge with ground level accumulation and transportation system.

Submersible pumps can be selected form the series to cater to individual well conditions and demands:

- Anti-scale series for treatment on calcium, magnesium, barium and strontium infested wells;
- High-temperature series for treatment on well temperature not exceeding 180 ℃
- Anti-corrosion series for treatment on CO_2 or H_2S corrosion
- Sand Resistance series for treatment of sand wells
- This product has a wide flow range, high head, excellent adaption for deviated well, limited wellhead occupancy space and management friendly. For the demanding flow, we can supply corresponding specifications.

● 结构尺寸 Structural Dimensions

最大外径 Maximum OD	98 ~ 171 mm
单节潜油泵长度范围 Single Motor Length Range	648 ~ 6649 mm

潜油分离器 Intake & Separator

规格/型号 Specifications/Model	BS338、BS387、BS540、BIN338、BIN387、BIN540、BIN675
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

本产品作为泵的液体入口，吸入口和气体分离器是必不可少的部件，依据井况应用条件选择吸入口或气体分离器。

本产品可根据不同井况条件选择不同系列:

- 防垢系列，适用具有钙镁垢、钡锶垢的井况；
- 防腐系列，适用具有CO_2或H_2S腐蚀的井况;
- 防砂系列，适用于出砂井况。

The pump needs an inlet for fluid. Intake and Separator are irreplaceable.
Contingent to the well condition, different Intake and separator can be assigned:

- Anti-scale series for treatment on calcium, magnesium, barium and strontium infested wells;
- Anti-corrosion series for treatment on CO_2 or H_2S corrosion
- Sand Resistance series for treatment of sand wells

● 结构尺寸 Structural Dimensions

系列 Series	名称 Product Name	最大外径 Maximum OD	长度 Diameter Length
338	分离器 Separator	95mm	400mm
	吸入口 Intake	95mm	800mm
387	分离器 Separator	98mm	692mm
	吸入口 Intake	98mm	229mm
540	分离器 Separator	130mm	1079mm
	吸入口 Intake	130mm	377mm
675	吸入口 Intake	171mm	500mm

设备附件 Equipment Accessories

气体处理器 Gas Processor

规格/型号 Specifications/Model	BG387、BG400、BG540
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

气体处理器在油、气、水三相轴向流动过程中，具有高的气体携带性能，气体在油管环空中释放，气体体积分数最高为70%。适用于5-1/2”及以上的生产套管，气体含量≤70%的井况中。

Gas Processor, has excellent gas carrying capacity during the oil, gas and water mixed flow axial flowing. Gas will be released to the atmosphere through casing-tubing annulus. Maximum gas volume is at 70%. Gas Processor is applicable for 5-1/2" or bigger production casings where the wells gas volume is less than or equal to 70%.

优越性：

- 减少气体对泵性能的影响，提高泵效及采油量
- 杜绝气体对泵的气蚀、气锁
- 提高泵的使用寿命
- 扩大了潜油电泵的应用范围
- 气体油管排放有利于环保

Distingushed Features:

- Minimize the impact of gas on pump performance; improve pump efficiency and oil production
- Eliminate gas pump cavitations, air locks
- Prolong lives of pumps
- Expand the scope of applications of electric submersible pumps
- Induce environmental friendly gas emission of gas pipelines

● 技术参数 Technical Parameters

系列 Series	流量 Flow		轴径 shaft O.D.
	BPD	m^3/d	
BG387 150	786 ~1101	125~175	7/8"
BG400 200	1258 ~1573	200~250	7/8"
BG400 300	1573 ~1887	250~300	7/8"
BG540 300	1887 ~3145	300~500	1 3/16"
BG540 600	3145 ~4403	500~700	1 3/16"

● 结构尺寸 Structural Dimensions

系列 Series	最大外径 Max. OD		长度 Length		重量 Weight	
	inch	mm	ft	m	lbs	kg
BG387 150	3.87	98	7.3	2.2	152	69
BG400 200	4.00	101.6	7.3	2.2	152	69
BG400 300	4.00	101.6	6.8	2.1	141	64
BG540 300	5.13	130.3	5.9	1.8	243	110
BG540 600	5.13	130.3	5.9	1.8	243	110

小扁引接电缆 MLE

规格/型号 Specifications/Model	456系列、540系列引接电缆
执行标准 Execution Standards	GB/T 16750-2015、JB 5332.1～5332.4-91

● 简介 Introduction

小扁引接电缆的结构自内至外为：独股(或多股)圆形铜导体、绝缘层、护套层(玻璃丝编织层或外护套层及填充层)和钢带铠装保护层。

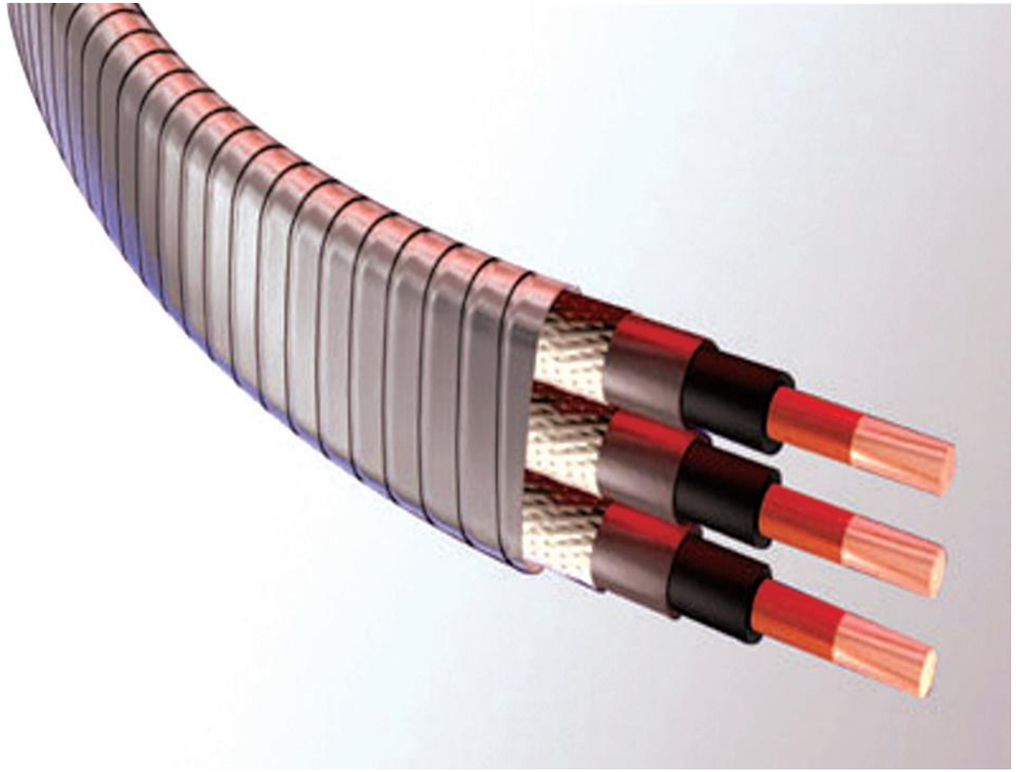
The structures of MLE inside and out are as follows: single unit (or units) Round copper conductor, insulation, sheathing (glass braid or outer jacket land filling layer) as well as steel tape armoring protection layers.

● 结构尺寸 Structual Dimensions

4#电缆芯线截面积 Cable core cross-sectional area	20mm²
6#电缆芯线截面积 Cable core cross-sectional area	13mm²

● 技术参数 Technical Parameters

规格 Specifications mm²	电压等级KV KV Voltage Level	温度等级℃ Temperature Rating
13（AWG6#）	3/6	90/120/150/180/204
20（AWG4#）	3/6	90/120/150/180/204



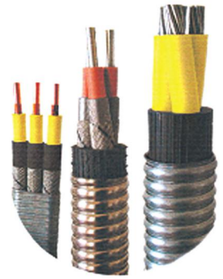
潜油动力电缆 Submersible Power Cable

规格/型号 Specifications/Model	1#、2#、4#、6#
执行标准 Execution Standards	GB/T 16750-2015、JB5332.1~5332.4-91

● 简介 Introduction

潜油动力电缆按截面形状分为圆、扁2种形状，结构自内而外分为：独股(或多股)圆形铜导体、绝缘层、护套层(玻璃丝编织层或外护套层及填充层)和钢带铠装保护层。该产品适用于井下温度180℃以下的井温环境。

Submersible power cable cross-sections are shaped into spherical and flat. Inside/out structures are divided into: single unit (or units) spherical copper conductor, insulation, sheathing (glass braid, external sheath and filling) and steel tape armoring protection layers. Applicable to sub-180℃ down-hole well environments.



● 结构尺寸 Structual Dimensions

芯数 Number of Cores	标称截面 Nominal Cross Section (mm²/AWG)	导体根数/单线标称直径 Conductor Elements/Singlet Nominal Diameter (mm)	外形尺寸不大于Maximum Dimension					
			圆电缆 Spherical Cable (mm²)		扁电缆 Flat Cable (mm²)		引接电缆 Connection Cable (mm²)	
			3 kV	6 kV	3 kV	6 kV	3 kV	6 kV
3	10/7	1/3.57	–	–	–	–	11.5×28.5	12.5×32
3	13/6	1/4.12	–	–	14.5×7.5	–	11.5×29.5	13×34
3	16/5	1/4.62	33	35	15×39	16×41	13×31.5	13.5×35
3	20/4	1/5.19	34	36	16×40	17×42.5	14×33	15×37
3	33/2	1/6.54;7/2.50	38	40	18×46	18.5×48.5	–	–
3	42/1	1/7.35;7/2.85	40	42	19×49	19×51	–	–
3	53/0	7/3.16	42	44	20×50	20.5×53	–	–

● 技术参数 Technical Parameters

规格 Specifications mm²	电压等级KV KV Voltage Level	温度等级℃ Temperature Rating
16（AWG5#）	3/6	90/120/150/180/204
20（AWG4#）	3/6	90/120/150/180/204

规格 Specifications mm²	电压等级KV KV Voltage Level	温度等级℃ Temperature Rating
33（AWG2#）	3/6	90/120/150/180/204
42（AWG1#）	3/6	90/120/150/180/204

电缆穿越器 Electrical Feedthru Systerms

规格/型号 Specifications/Model	井口穿越器 Wellhead Penetrator：K508、K635、K680 井下穿越器 Packer Penetrator：X488、X518
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

电缆穿越器用于电缆的穿越密封，具备防爆、耐油、耐二氧化碳、耐硫化氢等性能，可保证电缆在井口装置或井下封隔器中穿越时的密封性能和电性能，防止腐蚀性和有害气体的泄漏。电缆型号可根据客户的需求选择。

Cable crossing device deployed in hermetic closure embodies explosion-proof, oil resistance, carbon dioxide tolerance and hydrogen sulfide resistance. Wellhead and subterranean cable packers ensure sealing and electrical properties crossing; prevent corrosion and leaking of harmful gases. Models can be selected to cater for customer demand.

● 技术参数 Technical Parameters

压力 Pressure (PSI)	温度 Temparature (℃)	电压 Voltage (V)	电流 Electric Current (A)	防爆等级 Explosion Levels	备注 Remarks
3000 5000	120 150 180	5000	100 125 140 154	隔爆型 Flameproof of model	耐火、阻燃、防爆、耐油、耐水、耐CO_2、耐H_2S等 Fire-resistant，flame retardant, ecplosion-proof，oil resistant, water-resistant, CO_2 resistant，H_2S resistant

螺杆泵 Progressing Cavity Pump

规格/型号 Specifications/Model	电潜螺杆泵、杆驱螺杆泵 ESPCP、PCP
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

螺杆泵分为电潜螺杆泵和杆驱螺杆泵两种，电潜螺杆泵主要由电机、减速器、保护器、联轴器、螺杆泵等部件组成，杆驱螺杆泵主要由驱动头、抽油杆、螺杆泵等组成。螺杆泵同时具备普通螺杆泵和电潜泵的优点，系统效率可提高50%以上，比电潜泵高1倍。在稠油、适度含砂和中小排量油井的开采方面比潜油电泵节能50%左右。另外，螺杆泵属于容积式泵，流量调节容易，采出液不易发生乳化现象，适应粘度范围大。工程技术公司拥有下述4种螺杆泵系列产品：

The ESP consists of ESP and rod-driven screw pump, which consists of submersible motor, reducer, protector, coupling, screw pump and so on. The rod drive screw pump consists of wellhead drive device, Sucker rod, screw pump and other components. Screw pump is a positive displacement pump, suitable for heavy oil wells, sand wells and small displacement wells, relative to the electric submersible pump also has the advantages of high pump efficiency, energy saving advantages. Engineering company has the following four kinds of screw pump products:

- 常规电潜螺杆泵系列
- 大速比电潜螺杆泵系列
- 普通杆驱螺杆泵系列
- 连续杆驱螺杆泵系列

- Conventional electric potential screw pump series
- Large ratio of potential electric screw pump series
- Ordinary rod drive screw pump series
- Continuous rod drive screw pump series

● 技术参数 Technical Parameters

型号 Model	单排排量 Displacement (ml/r)	级数 Series	最大外径 Maximum Diamenter (mm) A	定子上螺纹 Stator Screw Thread B	转子螺纹 Rotor Screw Thread C	长度 Length (mm)	推荐排量范围 Recommended displacement range (m^3/d)	额定压力 Rated Pressure (Mpa)
GLB22-40	22	40	89	$2^7/_8$TBG	$1^1/_{16}$in	3450	1.5～6	16
GLB40-40	40	40				4450	2.8～10	16
GLB75-40	75	40			$1^3/_{16}$in	5900	5.4～20	20
GLB80-27	80	27				4480	5.7～20	13.5
GLB120-20	120	20	107	$3^1/_2$TBG	$1^3/_8$in	3600	8.6～30	10
GLB120-27		27				4600		13.5
GLB120-36		36				5600		18
GLB120-40		40				6600		20
GLB200-20	200	20				4600	14～50	10
GLB200-36		36				6600		18
GLB300-20	300	20				5560	21～75	10
GLB300-33		33				8000		16.5
GLB400-20	400	20				7040	28.8～100	10
GLB500-15	500	14				6620	36～140	9
GLB500-17		17				7000		10
GLB500-20		20				8000		12
GLB500-24		24				9600		14
GLB800-15	800	14	114		$1^9/_{16}$in	6620	58～220	9
GLB1200-15	1200	15				6150	86～350	9
GLB1400-14	1400	14				7500	100～400	8.5
GLB120-20/K	120	20	107		$1^3/_8$in	3624	8.6～35	10
GLB120-30/K		30				5124		15
GLB200-20/K	200	20				4600	14～50	10
GLB300-20/K	300	20				4600	21～75	10
GLB500-15/K	500	15				6620	36～140	9
GLB800-15/K	800	15	114		$1^9/_{16}$in	6620	58～220	9

注：此是常用螺杆泵规格参数，可以根据油井需求提供特定型号的螺杆泵产品。

Note: This is a commonly used screw pump specifications, according to the requirements of the oil well to provide a specific model of the screw pump products.

电缆护罩 Cable Protector

规格/型号 Specifications/Model	2-7/8 4# 3-1/2 1#/2#/4# 4-1/2 1#/2#/4# 5 1#/2#/4# 5-1/2 1#/2#/4#
执行标准 Execution Standards	GB/T 16750-2015

● 简介 Introduction

电缆护罩独特的设计能够避免护罩安装后产生轴向窜动和径向转动，能有效保护电缆不受伤害，同时提供多个控制管线槽口，同时保护控制管线不受伤害，安装方便，可重复使用。

Cable protectors are designed to avoid axial movement and radial rotation after installation; can effectively protect the cable from damage while providing a plurality of control pipelines troughs from damages, easy to install and can be reused.

● 技术参数 Technical Parameters

电缆保护器通常配一个11×11方槽、一个3/8" 管线槽，二个1/4" 管线槽。

Cable protectors are usually equipped with one 11×11square trough, one 3/8" line trough, two 1/4" line trough.

序号 Serial	型号 Model	序号 Serial	型号 Model	序号 Serial	型号 Model
1	3-1/2EUE4#圆 Round	12	4-1/2EUE2#扁 Flat	23	5-1/2BTC 4#圆 Round
2	3-1/2EUE4#扁 Flat	13	4-1/2NUE4#圆 Round	24	3-1/2JEEF BEAR
3	3-1/2EUE2#圆 Round	14	4-1/2NUE4#扁 Flat	25	5-1/2BTC 2#圆 Round
4	3-1/2EUE2#扁 Flat	15	4-1/2FOX4#圆 Round	26	5-1/2BGT1-4#圆 Round
5	3-1/2NUE4#扁 Flat	16	3-1/2FOX4#圆 Round	27	4-1/2BGT1-2#圆 Round
6	3-1/2NUE4#圆 Round	17	4-1/2FOX2#圆 Round	28	4-1/2BGT1-4#扁 Flat
7	2-7/8EUE4#圆 Round	18	3-1/2FOX2#圆 Round	29	2-7/8EUE双电缆4#扁 Flat
8	2-7/8EUE4#扁 Flat	19	3-1/2NEW VAM4#圆 Round	30	2-7/8EUE双电缆4#圆 Round
9	4-1/2EUE4#圆 Round	20	3-1/2NEW VAM2#圆 Round	31	3-1/2EUE双电缆4#圆 Round
10	4-1/2EUE4#扁 Flat	21	4-1/2NEW VAM4#圆 Round	32	3-1/2EUE双电缆4#扁 Flat
11	4-1/2EUE2#圆 Round	22	4-1/2NEW VAM2#圆 Round	33	2-7/8EUE压力计专用 Manometer(Proprietary)

设备附件 Equipment Accessories

单流阀 Check Valve

规格/型号 Specifications/Model	2-7/8"、3-1/2"、4-1/2"
执行标准 Execution Standards	GB16750-2015

● 简介 Introduction

单流阀阀座安装在阀体内，阀座与阀体之间安装密封圈，阀体为一整体，中间没有连接件，不存在漏失问题，阀球上设置弹簧，可及时关闭，密封性好，阀球活动受弹簧限制，不会形成涡流。

阀体60° 的锥面与阀芯60° 锥面密合，装配后可保证在25MPa压强下不泄漏、不渗漏。

Check valve seat is installed between the valve body, valve seat and valve installation sealing. Valve body is an integrated body with no connection. As such, there is no leakage problem. Mechanical springs are installed on valve ball that can be promptly closed with excellent sealing properties. Valve ball is controlled by a mechanical spring to ensure a vortex would not be formed.

The 60° tapered surface of the valve body is seamlessly sealed with its valve core counterparts. No leakage and seepage are guaranteed at 25MPa after assembly.

● 技术参数 Technical Parameters

扣型及尺寸可根据客户需求制定,推荐的扣型见下表:

Buckle type and size can be customized to meet individual demands; recommend buckle types as follows:

规格 Specifications	扣型 Buckle Type
2-7/8"	平式 Flat
	加厚 Thickened
3-1/2"	平式 Flat
	加厚 Thickened
4-1/2"	平式 Flat
	加厚 Thickened

产品特点:

- 只允许液体从下向上单向流动。
- 停泵后阻止管柱内井液中的沉积物进入泵内。
- 防止液柱回落引起泵反向旋转，而此时启动电泵将会增大启动阻力矩或引起断轴。
- 可靠性高，使用寿命长。

Pump Characteristics:

- Only one-way bottom-up flow of liquid is allowed.
- Sediments from well fluids entering the pump will be blocked after the pump is shut down.
- Pre-empt counter-rotation created by fluid column fallback which would increase startup resistance torque, breaking the shaft simultaneously.
- High reliability, long lives.

泄油阀 Bleed valve

规格/型号 Specifications/Model	2-7/8"、3-1/2"、4-1/2"
执行标准 Execution Standards	GB16750-2015

● 简介 Introduction

泄流阀的结构是在垂直于金属阀体的中间部位，安装一个带环槽的金属泄流销，其作用是当泵停止工作后，油管内充满液体在提油管前需投一重物将泄流销砸断，以便于提泵时使油管内的液体流入套管。

The structure and mechanism of drain valve is to install a ring-grooved metal discharge pin in the centre of the vertical metallic valve. The purpose is to facilitate fluid inflow to pipe casing when the pump is lifted by placing a heavy object to smash the discharge pin; as the pipeline will be filled with fluid after the pump is shut down.

● 技术参数 Technical Parameters

扣型及尺寸可根据客户需求制定，推荐的扣型见下表：
Buckle type and size can be customized to meet individual demands; recommend buckle types as follows:

规格 Specifications	扣型 Buckle Type
2-7/8"	平式 Flat
	加厚 Thickened
3-1/2"	平式 Flat
	加厚 Thickened
4-1/2"	平式 Flat
	加厚 Thickened

产品特点：

- 采用平底结构，接头拆卸时无油料泄漏，安全可靠
- 流体力学设计，在大流量时，内部压降小
- 液体实验值：21MPa/15Min

Pump Characteristics:

- Using a flat structure to ensure reliable and safe operation with no oil leakage when joint is disassembled
- Hydrodynamic design ensuring drop of internal pressure during voluminous traffic
- Liquid Test Values： 21MPa/15Min

设备附件 Equipment Accessories

扶正器（电泵） Centralizing Device(For ESP)

规格/型号 Specifications/Model	150平式 150 Flat、190平式 190 Flat、减震式 Shock Absorptiong Type
执行标准 Execution Standards	GB16750-2015

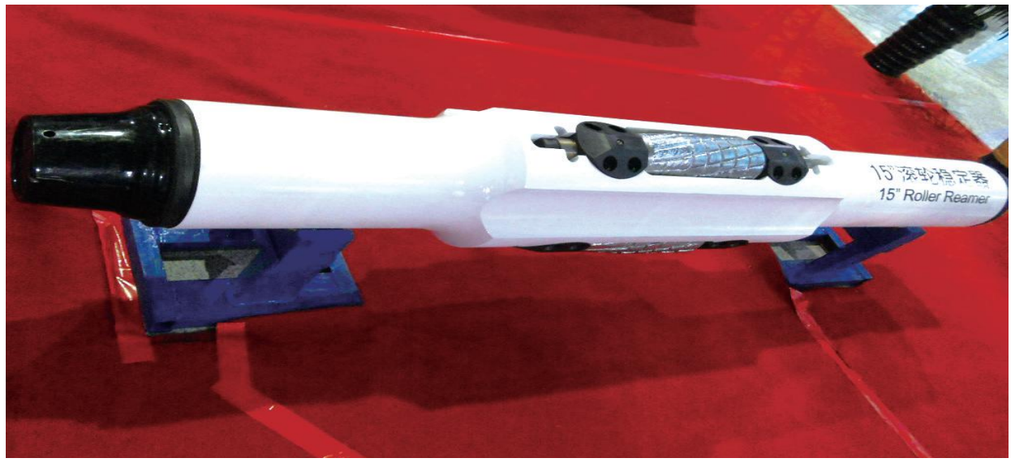
● 简介 Introduction

扶正器安装于电机底部，采用螺纹连接，在电泵机组下井的过程中起导向扶正作用，结构简单，安全可靠。

Centralizers are installed at the bottom of the motor with threaded connections. The functions of the Centralizing are deployed to facilitate guiding and rectifying during electric pump system down-well proceedings. The construction is simple, reliable and safe.simple, reliable and safe.

● 结构尺寸 Structural Dimensions

序号 Serial	规格/型号 Specifications/Model	最大外径 Maximum External Diameter
1	150平式 150 Flat	150mm
2	190平式 190 Flat	190mm
3	减震式 Shock Absorbing Formulation	150mm



产品特点：

- 可根据不同尺寸的生产管柱串，选择对应的规格型号；
- 可根据腐蚀介质的不同，选择合理的防腐材质；
- 液体实验值：21MPa/15Min

Pump Characteristics:

- End-users can rightfully select the matching specifications and model to cater for the production of different dimensions of production tubular jackets
- End-users can rightfully select the legitimate anti-corrosion materials in accordance to different corrosive mediums
- Liquid Experimental Value: 21MPa/15Min

设备附件 Equipment Accessories

变径接头 Crossover

规格/型号 Specifications/Model	2-7/8"P×3-1/2"B变扣 Transforming buckle、3-1/2"P×2-7/8"B变扣 Transforming buckle 3-1/2"P×4-1/2"B变扣 Transforming buckle、2-7/8"P×4-1/2"B变扣 Transforming buckle
执行标准 Execution Standards	GB16750-2015

● 简介 Introduction

变径接头主要用于处理管柱与管柱之间不协调的连接，使其变成合理连接，采用螺纹连接，结构简单，安全可靠。

- 可根据不同尺寸的生产管柱串，选择对应的规格型号;
- 可根据腐蚀介质的不同，选择合理的防腐材质。

Crossover is mainly to connect different sizes tubular jackets through the deployment of threaded connections, structure is simple, safe and reliable.

- End-users can rightfully select the matching specifications and model to cater for the production of different dimensions tubular jackets.
- End-users can rightfully select the legitimate anti-corrosion materials in accordance to different corrosive mediums.

● 结构尺寸 Structural Dimensions

序号 Serial	两端扣型 End-to-End Buckle Configurations
1	2-7/8"EUP×3-1/2"NUB
2	2-7/8"EUP×3-1/2"EUB
3	2-7/8"NUP×3-1/2"EUB
4	2-7/8"NUP×3-1/2"EUB
5	2-7/8"NUP×3-1/2"NUB
6	2-7/8"EUP×3-1/2"EUB
7	3-1/2"EUP×4-1/2"EUB
8	3-1/2"NUP×2-7/8"EUB
9	3-1/2"NUP×3-1/2"EUB

● 技术参数 Technical Parameters

抗拉强度 Tensile Strength	860N/mm2
屈服强度 Yield Strength	650N/mm2
伸长率 Elongation	21%
收缩率 Shrinkage	45%
液压试验值 Hydraulic Pressure Test Value	21MPa/15Min

Part 2 第二部分 电泵地面控制设备 ESP Surface Control Equipment

六脉低压变频器 Six Pulse Low-Voltage VSD

规格/型号 Specifications/Model	DPC600-110~630-3
执行标准 Execution Standards	GB/T12668.2-2002 GB/T12668.3-2003GB GB/T14549-1993 GB/T3783-2008

● 简介 Introduction

六脉低压变频器采用通用变频模块集成并具备基本的电机保护功能，能够满足电潜泵负载的特性要求和石油化工行业标准。

本产品由我公司自主生产，为应用现场量身定做，符合电潜泵的应用特性，其电潜泵专用控制技术特点如下:

- 拥有强大的通讯接口，可集成仪表、井下测试等数据，实现井上井下一体化;
- 可与平台DCS系统通讯和数据远程传输功能连接，实现油井状态远程监控;
- 具备智能闭环控制功能，根据井下压力数据等参数进行电机频率自动调节;
- 具有潜油电泵专用的电机保护功能，针对现场状况设置参数，延长电机使用寿命。

Six pulse low voltage inverter is an assembly of universal modules deploying a common frequency that embodies fundamental motor protection features and meeting the demands of electric submersible pump load requirements and petrochemical industry standards.

The products are manufactured by CNOOC and tailor-made for on-site applications, matching the distinguished characteristics of electric submersible pumps. Its pinpointing control technical features include the following:

- powerful communication interface, integrated meter and down-hole testing data, implementing down-hole and wellhead integration in the process;
- Can connect with the communication and distanced data transmission functions of platform DCS system to remotely monitor well operations;
- Smart close-loop monitoring ability to automatically adjust motor frequency in accordance to down-well pressure and other parameters;
- Has special motor protection function for submersible electric pump, sets parameters according to field condition, and extends the service life of motor.

● 技术参数 Technical Parameters

型号代码 Model Code	Icont[1] A	Imax[2] A	额定功率 Rated Power kW/kVA	散热量 Heat Loss kW	风量 Air m^3/h	噪音等级 Noise dBA	重量 Weight Kg	IP等级 Grade
三相供应电压380V/480V（范围380V~480V） Three-Phase Suply Voltage (Range 380~480)								
DPC 600-110-3	215	258	110/150	3.755	400	61	530	IP23
DPC 600-132-3	259	311	132/200	4.69	600	69	579	IP23
DPC 600-160-3	314	377	160/250	5.31	600	71	610	IP23
DPC 600-200-3	387	464	200/300	6.35	800	72	640	IP23
DPC 600-250-3	481	577	250/400	7.99	1200	73	715	IP23
DPC 600-315-3	616	739	315/500	9.62	1200	73	715	IP23
DPC 600-400-3	759	911	400/600	12.11	1800	75	1155	IP23
DPC 600-500-3	941	1129	500/700	15.25	1800	75	1165	IP23
DPC 600-630-3	1188	1426	630/900	18.98	2400	75	1240	IP23

● 技术规范 Specification Standards

1	工作环境温度 Ambient Temperature	−15° C ~ 50° C
2	相对湿度 Relative Humidity	≤ 95%, 无凝露 without condensation
3	海拔高度 Altitude	0 ~ 1000 m 无降容 1000 ~ 4000 m 降容 (1%/100m) 0 ~ 1000 m Zero, 1000 ~ 4000 m 1%/100m
4	防护等级 Degree Of Protection	IP23
5	输入电压范围 Input Voltage Range	3相, U= 380 ~ 480 V, ± 10% 3phase
6	电源频率范围 Power Frequency Range	48 Hz ~ 63 Hz
7	额定输出功率 Output Power Rating	110 ~ 630 kw
8	额定输出电流 Output Current Rating	215 ~ 1188 A
9	过载能力 Overload Capability	150%额定转矩，持续60秒/5分钟 150%Nominal Torque,Sustainabiility 60 seconds/5 minutes
10	输出电压范围 Output Voltage Range	0 ~ 输入电压 0 to input voltage
11	输出频率范围 Output Frequency Range	0 ~ 120 Hz
12	整流类型 Rectifier Type	6脉二极管整流 6−Pulse Diode Rectifier
13	逆变器晶体管类型 IGBT Inverter Transistor Type	IGBT
14	冷却方式 Type Of Cooling	强制风冷 Forced Air Cooling
15	外部通讯接口 Extermal Communication Interface	RS485、RS232
16	内部通信方式 Internal Communication Fashion	电缆 Cables
17	远程通讯接口 Remote Communication Interface	CANopen // ControlNe t// DeviceNet // Modbus // PROFIBUS DP // Ethernet/IP // Modbus/TCP // PROFInet IO //
18	I/O端子 Terminals	6DI、3RO、3AI、2AO,可扩展 Scalable
19	保护功能 Protetion Function	过载保护Overload Protection、欠载保护Under load protection、短路保护short−circuit protection、缺相保护 loss phase protection、 过温保护over−temperature protection etc
20	输出滤波器 Output Filter	正弦波 Sine Wave
21	效率 Efficiency	> 98%
22	功率因数 Power Factor	0.98
23	输入侧谐波分量 Line Side Harmonic Distortion	H5=36%,H7=17.8%, H11=8.1%,H13=5.3%
24	输出侧总谐波含量 load Side Harmonic Distortion	< 5%
25	控制方式 Control Mode	多点V/F 控制、矢量控制 V/F Control,Vector Control
26	进出线方式 In/Outlet format	上进上出 Top in, Top out 下进下出 Bottom in, Bottom Out

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W(宽)mm	D(深)mm	H(高)mm
DPC 600−110−3	820	620	2250
DPC 600−132−3	820	620	2250
DPC 600−160−3	820	620	2250
DPC 600−200−3	1020	620	2250
DPC 600−250−3	1020	620	2250
DPC 600−315−3	1020	620	2250
DPC 600−400−3	1720	720	2350
DPC 600−500−3	1720	720	2350
DPC 600−630−3	2600	760	2450

低谐波低压变频器 Low harmonic Low−voltage VSD

规格/型号 Specifications/Model	DPC800i−110～900−3
执行标准 Execution Standards	GB/T12668.2−2002、GB/T12668.3−2003 GB/T14549−1993、CB/T3783−2008

● 简介 Introduction

低谐波低压变频器是电潜泵专用变频调速柜标准柜机，其核心是采用通用变频模块集成，具备电机保护功能，同时能够满足电潜泵负载的特性要求、石油化工行业标准、海上平台应用防护等级和电潜泵应用系统等要求。该产品带有集成于变频柜的低谐波解决方案，它可提供一个特殊的低谐波滤波，能满足最严格的谐波需求，无需外部滤波器设备或多脉波变压器，电缆线路更简单，占用空间更少。

Low harmonic low−voltage inverter is a specialized electrical submersible pump frequency conducer utilizing a general purpose inverter as its core. The instrument embodies basic motor protection functions while meeting the specific load requirements of electric submersible pumps, petrochemical industrial standards as well as offshore platform protection applications requirements. The product demonstrates the ability to solve integrated low harmonic frequency problems by providing an unique low harmonic filter without further deployment of external filter device or pulse transformer; space saving with simple cable circuit.

● 技术参数 Technical Parameters

型号代码 Model Code	Icont[1] A	Imax[2] A	额定容量 Rated Capacity kw/kVA	散热量 Heat Loss kW	风量 Air m^3/h	噪音等级 Noise dBA	重量 Weight Kg
DPC 800i−110−3	202	293	110/140	7	2000	80	650
DPC 800i−132−3	250	363	132/170	8.1	2000	80	650
DPC 800i−160−3	292	400	160/210	9.3	3860	81	1200
DPC 800i−200−3	370	506	200/260	12	3860	81	1200
DPC 800i−250−3	469	642	250/320	15	5160	81	1650
DPC 800i−315−3	565	773	315/390	19	5160	81	1650
DPC 800i−400−3	730	1000	400/510	26	5160	81	1650
DPC 800i−500−3	919	1258	500/640	29	8400	82	2750
DPC 800i−630−3	1111	1521	630/770	37	8400	82	2750
DPC 800i−800−3	1379	1888	800/960	50	10400	82	3400
DPC 800i−900−3	1535	2102	900/1070	53	14240	83	4550

● 技术规范 Specification Standards

	OTS800i	
1	工作环境温度 Operating ambient temperature	−15℃~ 50° C
2	相对湿度 Relative humidity	≤ 95%, 无凝露 Non−condensing
3	海拔高度 Aititude	0 ~ 1000m 无降容1000 ~ 4000m 降容(1%/100m) 0 ~ 1000m zero derating, 1000 ~ 4000m derating(1%/100m)
4	防护等级 Degree of protection	IP23

5	输入电压范围 Input voltage range	3相, U= 380至690 V, ± 10% 3-phase,U=380 to 690, ± 10%
6	电源频率范围 Power frequency range	48 Hz ~ 63 Hz
7	额定输出功率 Rated output power of	110 kw ~ 900 kw
8	额定输出电流 Rated output current	202 A ~ 1535 A
9	过载能力 Overload capacity	120%额定转矩，持续60秒/5分钟 120% rated torque for 60 seconds/5 minutes
10	输出电压范围Output voltage range of	0 ~ 输入电压 0 to input voltage
11	输出频率范围 Output frequency range	0 ~ 120 Hz
12	整流类型 Rectifier type	IGBT整流 IGBT rectifier
13	逆变器晶体管类型 Transistor type	IGBT
14	冷却方式 Cooling	强制风冷 Forced air cooling
15	外部通讯接口 External communication interface	RS485、RS232
16	内部通信方式 Internal communication mode	光纤 Optical fiber
17	远程通讯接口 Remote communication interface	CANopen//ControlNet//DeviceNet// Modbus// PROFIBUS DP // Ethernet/IP// Modbus/TCP//PROFInet IO//
18	I/O端子 I/O terminals	6DI、3RO、3AI、2AO，可扩展 Scalable
19	报警功能 Alarm	过温报警 Over temperature alarm
20	输出滤波器 Sine wave	正弦波 Output filter
21	效率 Efficiency	> 98%
22	功率因数 Power factor	0.98
23	输入侧谐波分量 On the input side harmonic components	4%
24	输出侧总谐波含量 The total harmonic content output side	< 5%
25	控制方式 Control mode	V/F控制、矢量控制、转矩控制 V/F control, vector control, torque control
26	进出线方式 In/Outlet format	下进下出/上进上出 Bottom in/bottom out; top in/toop out

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W(宽)mm	D(深)mm	H(高)mm
DPC 800i-110-3	1030	646	2130
DPC 800i-132-3	1030	646	2130
DPC 800i-160-3	1630	646	2130
DPC 800i-200-3	1630	646	2130
DPC 800i-250-3	2230	646	2130
DPC 800i-315-3	2230	646	2130
DPC 800i-400-3	2230	646	2130
DPC 800i-500-3	3430	646	2130
DPC 800i-630-3	3430	646	2130
DPC 800i-800-3	4730	646	2130
DPC 800i-900-3	5530	646	2130

高防护等级潜油电泵专用变频器 High level enclosure class ESP VSD

规格/型号 Specifications/Model	DPC600-H56-110～315-3/4
执行标准 Execution Standards	GB/T12668.2-2002、GB/T12668.3-2003 GB/T14549-1993、CB/T3783-2008

● 简介 Introduction

IP56高防护等级设计，满足海洋平台户外安装使用，采用全316L不锈钢材质高品质机柜，内部硬件结构紧凑，外形体积小，集成潜油电泵专用控制功能，给潜油电泵提供更完善的保护。

IP56 grade meeting the outdoor installation for the platform，Cabinet using the 316L material，With a compact hardware structure, and small size，Optimize structure according to the site，Easy to maintain with modular structure.

● 技术参数 Technical Parameters

型号代码 Model Code	Icont[1] A		Imax[2] A		额定容量 Rated Capacity kw/kVA	散热量 Heat Loss kW	噪音等级 Noise dBA	重量 Weight Kg
	400V	480V	400V	480V				
DPC600-H56-140-4/5	210	190	310	285	110/140	2.2	72	400
DPC600-H56-160-3/4	260	240	390	360	132/170	2.6	72	450
DPC600-H56-200-3/4	315	300	470	450	160/210	3.2	73	500
DPC600-H56-250-3/4	380	360	580	540	200/260	4	73	650
DPC600-H56-315-3/4	480	440	700	650	250/320	5	75	750
DPC600-H56-400-3/4	600	540	900	800	315/390	6.3	75	900

● 技术规范 Specification Standards

1	工作环境温度 Ambient Temperature	-25° C ~ 40° C
2	相对湿度 Relative Humidity	100%, dewing
3	海拔高度 Altitude	0 ~ 1000 m 无降容 1000 ~ 4000 m 降容 (1%/100m) 0...1000 m No capacity-reducing 1000...4000 m Capacity-reducing(1% / 100 m)
4	防护等级 Degree Of Protection	IP56
5	电源电压 Supply Voltage Range	3相, U= 380 ~ 500 V, ± 10% 3phase
6	电源频率范围 Power Frequency Range	48 Hz ~ 63 Hz
7	过载能力 Overload Capability	150%额定转矩，持续60秒/5分钟 1150% Rated torque, continuous 60 Seconds /5 Minutes
8	输出电压范围 Output Voltage Range	0 ~ 输入电压 0 to input voltage
9	输出频率范围 Output Frequency Range	0 ~ 120 Hz
10	整流类型 Rectifier Type	6脉二极管整流 6 Pulse Diode Rectifier
11	逆变器晶体管类型 IGBT Inverter Transistor Type	IGBT
12	冷却方式 Type Of Cooling	强制风冷 Forced Air Cooling
13	外部通讯接口 Extermal Communication Interface	RS485、RS232
14	专用保护功能 Protetion Function	过载、欠载、电流限幅、气锁等 Overload, underload, current imbalance, lack of protection, air lock warning,etc.
15	输出波形 Output waveform	正弦波 Sine wave
16	效率 Efficiency	> 98%
17	功率因数 Power Factor	0.98
18	控制方式 Control Mode	V/F 控制、矢量控制 V/F Control,Vector Control
19	柜体材质 Cabinet material	316L不锈钢 316L Stainless steel
20	进出线方式 In/Outlet format	上进上出 Top in, Top out 下进下出 Bottom in, Bottom Out
21	电源短路保护类型 Power supply short circuit protection	快速熔断器 Fast acting fuse

煤层气井专用变频柜 CBM Wells Dedicated VSD

规格/型号 Specifications/Model	OTSVDFS-M-7.5~15
执行标准 Execution Standards	GB/T12668.2-2002 GB/T12668.3-2003 GB/T14549-1993 GB/T3783-2008

● 简介 Introdution

煤层气井专用变频控制柜针对煤层气生产现场定制开发，产品充分考虑现场应用环境特点，采用高品质户外型柜体，在工艺上进行酸洗、磷化、电泳后进行喷涂，涂层采用户外专用漆，耐雨淋、耐阳光暴晒，结构上采用独立风道散热，双层门设计，主要电气部件均置于高防护等级空间内，保证了解决变频器散热问题的同时，也不会造成灰尘堆积，采用高性能、高可靠性模块，模块内控制电路板均有三防处理，标配浪涌保护器，利于设备长期户外环境稳定运行，对于恶劣环境有着可靠稳定的运行基础。

CBM wells dedicated VSD can improve the yield of oil wells and pump effectiveness. The device reacts according to the actual capacity of the wells fluid, dynamic adjustment of extraction rate. It can save energy and increase oil production by lowering heavy oil stroke frequency; improve pump efficiency and minimize pump idling, increasing pump efficiency of most wells by 15 to 30%.

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W (宽) mm	D (深) mm	H (高) mm
DPC200-M-7.5-3	800	600	1000
DPC200-M-11-3	800	600	1000
DPC200-M-15-3	800	600	1000
DPC200-M-22-3	800	600	1000

煤层气开采现场恶劣，系统设计考虑现场应用环境复杂，对系统进行多方位特殊设计：

- 变频器独立风道设计，嵌入式安装可有效解决现场环境恶劣的使用问题；
- 系统设计浪涌保护器可有效起到系统防雷及抗电压冲击作用；
- 工变频转换功能，可在变频器检修、不需调速及电网不稳定情况下使用工频运行，有效提高设备使用率；
- 独立的电压电流显示部分，简化巡检系统；
- 变频器面板外引可使调试及生产维护更加方便；
- 制动电阻的独立风扇可有效解决系统发电的电阻散热问题；
- 变频器标配直流电抗器可对母线电压进行平波滤波，提高变频器使用寿命；
- 印刷电路板三防漆处理可适应更加恶劣的粉尘及潮湿场合。

CMB system installs multiple special designs to combat miserable mine sites conditions:

- Inverter independent duct design, embedded installation can effectively solve the problem of harsh field environments;
- Surge protection system designed to effectively protect system form lightning and combat voltage surges;
- Work-conversion functions repair the inverter without adjusting the speed while operating under unstable electricity grid conditions. Deploying power frequency operations would effectively lift equipment utilization rates;
- Independent voltage and current displays to simplify inspection system;
- External inverter panel allows ready and more convenient adjustments and maintenances;
- Independent fan braking resistor can effectively solve the problem of heat dispersion resistance of power generation system;
- Standard Inverter DC reactor to balance filter bus-bar voltage, prolong inverter longevity;
- Printed circuit board provides 3-proned anti-lacquer treatment enhancing adaptability to stringent dust and humid conditions.

● 技术参数 Technical Parameters

1	安装位置 Installation location	室外 Outdoor
2	环境温度 Ambient temperature	最大45℃/ 最小-18℃ Maximum 45℃/Minimum -18℃
3	相对湿度 Relative humidity of	40% ~ 97%
4	海拔高度 Altitude	海平面1000~1500米 Sea level 1000~1500m
5	气候 Climate	内陆、潮湿
6	设备型号 Equipment model	DPC200-M
7	额定输入电压 Rated input voltage	3P,380 VAC(-20% ~ -10%)
8	额定输入频率 Rated input frequency	50 Hz ± 3 Hz
8	额定功率 Rated power	7.5KW/11KW/15KW
9	额定输出电流 Rated output curent	17A / 25A / 32A /45A
10	过载能力 Overload	150%,1分钟每5分钟 1 minute every 5minutes
11	最大功率因数 Maximum power factor	0.98
12	输出频率 Output frequency	0 ~ 100 Hz
13	输出电压 Output voltage	0V~电源电压 Supply voltage
14	冷却方式 Cooling	强制风冷 Forced air cooling
15	工作温度 Operating temperature	-18℃ ~ +45℃
16	工作湿度 Humidity	10% ~ 90%
17	防护等级 Protection class	IP44
18	效率 Efficiency	97%
19	控制方式 Control	矢量控制、2点V/F,多点V/F等 Vector control, 2:00 V/F, Multi-point V/F, etc.
20	整流单元类型 Full-wave rectifier unit type	全波二极管或SCR整流 Rectifier diode or SCR
21	通讯要求 Communication requirements	具备RS485通讯端口, 有标准数据接口和通讯协议, MODBUS-RTU /TCP/IP等, 可实现远程传输及远程控制 Equipped with RS485 communication port stipulating standard data interfaces and communications protocols, MODBUS-RTU/TCP/IP enabling remode transmission and remode control
22	进出线方式 Inlet and outlet	底部进出线 Bottom in/Bottom out
23	安装方式 Stationary	底部固定 Bottom installation
24	逆变晶体管类型 Transistor type	IGBT inverter
25	保护功能 Protection	过流及过压保护 Over-current protection 欠压保护 Voltage protection 过温保护 Over-heat protection 接地保护 Ground fault protection 急停保护 Emergency protection 负荷丢失或相间短路保护 Load loss or phase short circuit protection 过载保护 Overload protection 欠载保护 Under-load protection 输入缺相保护 Input phase protection 输入电源保护 Input power protection 电流限幅 Current limitation 输出缺相保护 Output phase protection

直线电机往复泵专用变频柜 Linear Moter Reciprocating Pump VSD

规格/型号 Specifications/Model	DPC200-Z-160-10
执行标准 Execution Standards	GB/T12668.2-2002 GB/T12668.3-2003 GB/T14549-1993 GB/T3783-2008

● 简介 Introdution

直线电机往复泵专用变频柜可根据需要实现对直线电机往复泵的上行、下行频率和冲次调节，上行频率在8Hz~15Hz范围内可调，下行频率在15Hz~24Hz范围内可调。具有短路、过载等保护；电压、电流、各种故障的显示功能。结构紧凑，布局合理，可满足多种环境条件下的使用要求。

Linear motor reciprocating pump VSD can be based on the need,The realization of linear motor reciprocating pump uplink, downlink frequency and stroke regulation,Uplink frequency can be adjusted in the range of 8Hz~15Hz,Downlink frequency can be adjusted in the range of 15Hz~24Hz.With short circuit, overload protection, voltage, current, all kinds of fault display function.The utility model has the advantages of compact structure and reasonable layout, and can meet the requirements of various environmental conditions.

产品设计考虑适用海上平台应用环境，产品具有以下优势:

- 变频器独立风道设计，结构紧凑;
- 变频器整体采用模块化成柜设计，便于维修维护;
- 变频器采用触摸屏人机操作界面，可使调试及生产维护更加方便;
- 变频器标配输出电抗器，抑制反向尖峰电压，有效保护功率器件;
- 印刷电路板三防漆处理可适应更加恶劣的粉尘及潮湿场合。

Application of offshore platform for product design,The product has the following advantages:

- Independent air duct design, compact structure;
- The inverter adopts the modular cabinet design, which is convenient for maintenance;
- The inverter adopts touch screen man-machine interface, which makes debugging and production maintenance more convenient;
- Inverter standard output reactor, inhibit the reverse peak voltage, effective protection of power devices;
- The printed circuit board can be adapted to more severe dust and moisture.

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W (宽) mm	D (深) mm	H (高) mm
DPC200-Z-160-10	550	650	2350

● 技术参数 Technical Parameters

1	设备型号 Equipment model	DPC200-Z-160-10
2	额定输入电压 Rated input voltage	3P,1140 VAC(-10% ~ +10%)
3	额定输入频率 Rated input frequency	50 Hz ± 3 Hz
4	额定功率 Rated power	80kW（适用于所有80kW及以下的直线电机 Applicable to all 80kW and below linear motor）
5	额定输出电流 Rated output curent	80A
6	过载能力 Overload	120%,1分钟每5分钟 1 minute every 5minutes
7	最大功率因数 Maximum power factor	0.98
8	输出频率 Output frequency	上行Up 8 ~ 15 Hz/下行Down15~24Hz
9	输出电压 Output voltage	8/分钟 min
10	冷却方式 Cooling	强制风冷 Forced air cooling
11	工作温度 Operating temperature	-10℃ ~ +50℃
12	工作湿度 Humidity	10% ~ 95%
13	防护等级 Protection class	IP23
14	效率 Efficiency	97%
15	控制方式 control	矢量控制、2点V/F,多点V/F等 Vector control, 2:00 V/F, Multi-point V/F, etc.
16	整流单元类型 full-wave rectifier unit type	二极管整流 Rectifier diode
17	通讯要求 Communication requirements	具备RS485通讯端口, 有标准数据接口和通讯协议, MODBUS-RTU /TCP/IP等, 可实现远程传输及远程控制 Equipped with RS485 communication port stipulating standard data interfaces and communications protocols, MODBUS-RTU/TCP/IP enabling remode transmission and remode control
18	进出线方式 Inlet and outlet	底部进出线 At the bottom of the inlet and outlet
19	安装方式 Stationary	底部固定 Bottom installation
20	逆变晶体管类型 Transistor type	IGBT inverter
21	保护功能 Protection	过流及过压保护 Over-current protection 欠压保护 Voltage protection 过温保护 Over-heat protection 接地保护 Ground fault protection 急停保护 Emergency protection 负荷丢失或相间短路保护 Load loss or phase short circuit protection 过载保护 Overload protection 输入缺相保护 Input loss phase protection 输入电源保护 Input power protection

级联式中压变频器 Cascade Medium-Voltage VSD

规格/型号 Specifications/Model	DPC1000-M
执行标准 Execution Standards	GB/T12668.2-2002、GB/T12668.3-2003 IEC 61800-5-1-2007、GB/T3859.1-2013

● 简介 Introdution

DPC1000-M系列中压变频器基于串联H桥拓扑结构，输入侧采用18脉及以上整流方式THD≤5%对电网污染极小，输出侧采用电压源脉宽调制（VSI-PWM）技术，若干个低压PWM变频功率单元串联的方式实现VSI-PWM多阶电平高压输出。特点如下：输入功率因数高，输出波形质量好，不存在谐波引起的电机附加发热、转矩脉动、噪音、dv/dt及共模电压等问题的特性，不必加输出滤波器适用于长距离电机电缆传输，有效降低高次谐波分量，延长潜油电机和供电电缆的使用寿命。

DPC1000-M series of MV VSD based on the Cascade H-bridge topology, the input side with 18 pulse and above rectification， THD ≤ 5% of the grid pollution is minimal. The output side of the voltage source PWM (VSI-PWM) technology, Low-voltage PWM power cells in series to achieve VSI-PWM multi-level high-voltage output. Features: Input power factor is very high, the output waveform quality is good, there is no harmonic caused by the motor additional heat, torque ripple, noise, dv / dt and common mode voltage and other characteristics of the problem, do not have to add the output filter for long distance Motor cable transmission, effectively reduce the harmonic components, to extend the life of submersible motor and power supply cable.

序号 NO.	产品型号 Product Model	Icont[1] A	Icell[2] A	额定容量 Rated Power kW/kVA	最大损耗 Heat Loss kW	风量 Air m³/s	噪音等级 Noise dBA	重量 Weight T	外形尺寸 Dimension (WxDxH)
三相供应电压 3.3KV,4.16KV,6KV或10.5KV，18脉冲整流，输出额定电压3.3KV (3P 3.3K V,4.16KV,6KV or 10.5KV，18 pulse，Rated power @ 3.3KV)									
1	DPC1000-M18-149-33	32	40	149/180	6	3.2	80	2.2	T1
2	DPC1000-M18-189-33	40	40	189/225	7	3.2	80	2.2	T1
3	DPC1000-M18-224-33	47	70	224/270	8	3.2	80	2.2	T1
4	DPC1000-M18-298-33	63	70	298/360	11	3.2	80	2.5	T1
5	DPC1000-M18-331-33	70	70	331/400	12	3.2	80	2.5	T1
6	DPC1000-M18-373-33	79	100	373/450	13	3.2	80	3.1	T1
7	DPC1000-M18-448-33	100	100	448/540	16	3.2	80	3.1	T1
8	DPC1000-M18-552-33	110	140	552/630	20	4.0	80	3.3	T2
9	DPC1000-M18-662-33	140	140	662/800	24	4.0	80	3.3	T2
10	DPC1000-M18-746-33	154	200	746/880	26	4.0	80	3.5	T2
11	DPC1000-M18-821-33	170	200	821/970	29	4.0	80	3.5	T2
12	DPC1000-M18-933-33	192	200	933/1100	33	4.0	80	3.8	T2
13	DPC1000-M18-1007-33	208	260	1007/1190	36	4.0	80	3.8	T2
三相供应电压 3.3KV,4.16KV,6KV或10.5KV，18脉冲整流，输出额定电压4.16KV(3P 3.3K V,4.16KV,6KV or 10.5KV，18 pulse，Rated power @ 4.16KV)									
1	DPC1000-M18-155-41	26	40	155/187	6	3.2	80	2.4	T2
2	DPC1000-M18-238-41	40	40	238/288	9	3.2	80	2.5	T2
3	DPC1000-M18-352-41	59	70	352/425	13	3.2	80	2.6	T2
4	DPC1000-M18-388-41	65	70	388/468	14	3.2	80	2.7	T2
5	DPC1000-M18-417-41	70	70	417/504	15	3.2	80	2.9	T2
6	DPC1000-M18-465-41	78	100	465/562	17	3.2	80	3.0	T2
7	DPC1000-M18-543-41	91	100	543/656	19	4.0	80	3.1	T2
8	DPC1000-M18-596-41	100	100	596/720	21	4.0	80	3.3	T2
9	DPC1000-M18-698-41	117	140	698/843	25	4.0	80	3.4	T2
10	DPC1000-M18-835-41	140	140	835/1009	30	4.0	80	3.7	T2
11	DPC1000-M18-948-41	159	200	948/1146	33	4.0	80	4.2	T2
12	DPC1000-M18-1020-41	171	200	1020/1232	36	4.0	80	4.4	T2
三相供应电压 3.3KV,4.16KV,6KV或10.5KV，30脉冲整流，输出额定电压6.6KV (3P 3.3K V,4.16KV,6KV or 10.5KV，30 pulse，Rated power @ 6.6KV)									
1	DPC1000-M30-320-60	34	40	320/390	12	4.5	80	3.3	T3
2	DPC1000-M30-378-60	40	40	378/455	14	4.5	80	3.5	T3
3	DPC1000-M30-480-60	51	70	480/580	17	4.5	80	3.6	T3
4	DPC1000-M30-600-60	63	70	600/730	22	4.5	80	3.9	T3
5	DPC1000-M30-662-60	70	70	662/800	24	4.5	80	4.1	T3
6	DPC1000-M30-800-60	85	100	800/970	28	4.5	80	4.2	T3
7	DPC1000-M30-946-60	100	100	946/1140	34	5.0	80	4.5	T3
8	DPC1000-M30-1080-60	114	140	1080/1310	38	5.0	80	4.7	T4
9	DPC1000-M30-1200-60	127	140	1200/1450	42	5.0	80	4.8	T4
10	DPC1000-M30-1324-60	140	140	1324/1600	47	5.0	80	5.3	T4
11	DPC1000-M30-1520-60	157	200	1520/1790	54	5.6	80	5.7	T4

序号 NO.	产品型号 Product Model	Icont[1] A	Icell[2] A	额定容量 Rated Power kW/kVA	最大损耗 Heat Loss kW	风量 Air m³/s	噪音等级 Noise dBA	重量 Weight T	外形尺寸 Dimension（WxDxH）
12	DPC1000-M30-1800-60	186	200	1800/2120	63	6.4	80	6.2	T4
13	DPC1000-M30-1939-60	200	200	1939/2285	68	6.4	80	6.6	T4
三相供应电压 380V，18脉冲整流，输出额定电压3.3KV (3P 380V，18 pulse，Rated power @ 3.3KV)									
1	DPC1000-M18-149-33	32	40	149/180	6	3.2	80	2.4	T5
2	DPC1000-M18-189-33	40	40	189/225	7	3.2	80	2.4	T5
3	DPC1000-M18-224-33	47	70	224/270	8	3.2	80	2.4	T5
4	DPC1000-M18-298-33	63	70	298/360	11	3.2	80	2.7	T5
5	DPC1000-M18-331-33	70	70	331/400	12	3.2	80	2.7	T5
6	DPC1000-M18-373-33	79	100	373/450	13	3.2	80	3.3	T5
7	DPC1000-M18-448-33	100	100	448/540	16	3.2	80	3.3	T5
8	DPC1000-M18-552-33	110	140	552/630	20	4.0	80	3.6	T5
9	DPC1000-M18-662-33	140	140	662/800	24	4.0	80	3.8	T5
10	DPC1000-M18-746-33	154	200	746/880	26	4.0	80	3.8	T5
11	DPC1000-M18-821-33	170	200	821/970	29	4.0	80	3.8	T5
12	DPC1000-M18-933-33	192	200	933/1100	33	4.0	80	4.1	T5
13	DPC1000-M18-1007-33	208	260	1007/1190	36	4.0	80	4.1	T5
三相供应电压 380V，18脉冲整流，输出额定电压4.16KV(3P 380V，18 pulse，Rated power @ 4.16KV)									
1	DPC1000-M18-155-41	26	40	155/187	6	3.2	80	2.6	T5
2	DPC1000-M18-238-41	40	40	238/288	9	3.2	80	2.7	T5
3	DPC1000-M18-352-41	59	70	352/425	13	3.2	80	2.8	T5
4	DPC1000-M18-388-41	65	70	388/468	14	3.2	80	2.9	T5
5	DPC1000-M18-417-41	70	70	417/504	15	3.2	80	3.1	T5
6	DPC1000-M18-465-41	78	100	465/562	17	3.2	80	3.2	T5
7	DPC1000-M18-543-41	91	100	543/656	19	4.0	80	3.3	T5
8	DPC1000-M18-596-41	100	100	596/720	21	4.0	80	3.5	T5
9	DPC1000-M18-698-41	117	140	698/843	25	4.0	80	3.7	T5
10	DPC1000-M18-835-41	140	140	835/1009	30	4.0	80	4.0	T5
11	DPC1000-M18-948-41	159	200	948/1146	33	4.0	80	4.5	T5
12	DPC1000-M18-1020-41	171	200	1020/1232	36	4.0	80	4.7	T5
三相供应电压 380V，30脉冲整流，输出额定电压6.6KV (3P 380V，30 pulse，Rated power @ 6.6KV)									
1	DPC1000-M30-320-60	34	40	320/390	12	4.5	80	3.5	T6
2	DPC1000-M30-378-60	40	40	378/455	14	4.5	80	3.7	T6
3	DPC1000-M30-480-60	51	70	480/580	17	4.5	80	3.8	T6
4	DPC1000-M30-600-60	63	70	600/730	22	4.5	80	4.1	T6
5	DPC1000-M30-662-60	70	70	662/800	24	4.5	80	4.3	T6
6	DPC1000-M30-800-60	85	100	800/970	28	4.5	80	4.5	T6
7	DPC1000-M30-946-60	100	100	946/1140	34	5.0	80	4.8	T6
8	DPC1000-M30-1080-60	114	140	1080/1310	42	5.0	80	5.0	T7
9	DPC1000-M30-1200-60	127	140	1200/1450	47	5.0	80	5.1	T7
10	DPC1000-M30-1324-60	140	140	1324/1600	47	5.0	80	5.6	T7
11	DPC1000-M30-1520-60	157	200	1520/1790	54	5.6	80	6.0	T7
12	DPC1000-M30-1800-60	186	200	1800/2120	63	6.4	80	6.5	T7
13	DPC1000-M30-1939-60	200	200	1939/2285	68	6.4	80	6.9	T7

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W (宽) mm	D (深) mm	H (高) mm
T1	1676	1067	2690
T2	2100	1143	3035
T3	3657	1250	2888
T4	4730	1250	2888
T5	2100	1000	2690
T6	3000	1200	2200
T7	3200	1200	2200

● 技术参数 Technical Parameters

1	工作环境温度 Ambient Temperature	0° C ~ 40° C
2	相对湿度 Relative Humidity	≤ 95%, 无凝露 without condensation
3	海拔高度 Altitude	0 ~ 1000 m 无降容 1000 ~ 4000 m 降容 (1%/100m) 0 ~ 1000 m Zero, 1000 ~ 4000 m 1%/100m
4	防护等级 Degree Of Protection	IP31、IP23 or IP42
5	输入电压范围 Input Voltage Range	3AC, U= 0.38、3.3~11KV, ± 10%
6	电源频率范围 Power Frequency Range	50Hz, +10% −5%
7	过载能力 Overload Capability	150% Rated torque, continuous 60 Seconds /10Minutes
8	输出电压 Output Voltage Range	0~3.3KV、0~4.16KV、0~6.6KV
9	输出频率 Output Frequency Range	0~120Hz
10	频率分辨率 Frequency resolution	0.01Hz
11	整流类型 Rectifier Type	18 or 30 Pulse diode rectifier
12	逆变器晶体管类型 IGBT Inverter Transistor Type	IGBT
13	逆变方式 Motor-side inverter	Multi-level drive (PWM) with IGBT power modules
14	冷却方式 Type Of Cooling	强制风冷 Forced Air Cooling
15	外部通讯接口 Extermal Communication Interface	RS485、RS232
16	保护功能 Protetion Function	过载保护Overload Protection、欠载保护Under load protection、短路保护short-circuit protection、缺相保护open-phase protection、过温保护over-temperature protection etc
17	输入侧谐波 Line Side Harmonic Distortion	THDi≤5%
18	输出侧谐波 load Side Harmonic Distortion	THDv≤5%
19	允许电压降 Permissible voltage drop	30%
20	电压瞬断 Medium-voltage ride-through	5 cycle
21	中压隔离 Potential separation (power section/open- and closed-loop control)	5 cycle
22	效率 Efficiency	≥96.5%
23	功率因数 Power Factor	>0.95
24	控制方式 Control Mode	多点V/F 控制、矢量控制 V/F Control,Vector Control
25	进出线方式 In/Outlet format	上进上出 Top in, Top out 下进下出 Bottom in, Bottom Out

三电平式中压变频器 Three-level Medium Voltage VSD

规格/型号 Specifications/Model	DPC1000-N
执行标准 Execution Standards	GB/T12668.2-2002、GB/T12668.3-2003 IEC61800-5-1-2007、GB/T3859.1-2013

● 简介 Introdution

三电平式中压变频器是根据油田采油潜油泵而设计的专用的变频调速装置，该变频装置为三电平结构，具有独特的中点电位自动箝位功能，特点如下：三电平结构、功率元件承受较低电压、安全可靠、高度智能化、操作简单、逆变器输出电压上升率(dv/dt)小、中点电位自动箝位、结构简单、开关损耗小。

Three-level medium voltage VSD is based on the oil field submersible pump designed for the special frequency control device, the frequency conversion device for the three-level structure, with a unique midpoint potential automatic clamping function, features are as follows: three levels Structure, power components to withstand lower voltage, safe and reliable, highly intelligent, simple operation, inverter output voltage rise rate (dv / dt) small, midpoint potential automatic clamping, simple structure, low switching losses.

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W(宽)mm	D(深)mm	H(高)mm
DPC1000-N-180-26-26	550	750	2300
DPC1000-N-270-26-26	750	600	2300
DPC1000-N-360-26-26	1100	750	2300
DPC1000-N-400-26-26	1100	750	2300

● 技术参数 Technical Parameters

型号代码 Model Code	Icont[1] A	额定功率 Rated Power kW/kVA	散热量 Heat Loss kW	噪音等级 Noise dBA	重量 Weight Kg
DPC1000-N-180-26-26	616	315/500	9.62	73	715
DPC1000-N-270-26-26	759	400/600	12.11	75	1155
DPC1000-N-360-26-26	941	500/700	15.25	75	1165
DPC1000-N-400-26-26	1188	630/900	18.98	75	1240

● 技术参数 Technical Parameters

1	工作环境温度 Ambient Temperature	0° C ~ 40° C
2	相对湿度 Relative Humidity	≤ 95%, 无凝露 without condensation
3	海拔高度 Altitude	0 ~ 1000 m 无降容 1000 ~ 4000 m 降容 (1%/100m) 0 ~ 1000 m Zero, 1000 ~ 4000 m 1%/100m
4	防护等级 Degree Of Protection	IP23
5	输入电压范围 Input Voltage Range	3AC, 2.6KV, ± 10%
6	电源频率范围 Power Frequency Range	50Hz, ±10%
7	过载能力 Overload Capability	120% Rated torque, continuous 60 Seconds /10Minutes
8	输出电压 Output Voltage Range	0~2.6KV
9	输出频率 Output Frequency Range	0~120Hz
10	频率分辨率 Frequency resolution	0.01Hz
11	整流类型 Rectifier Type	6 or 12 Pulse diode rectifier
12	逆变器晶体管类型 IGBT Inverter Transistor Type	IGBT
13	逆变方式 Motor-side inverter	中点箝位式三电平逆变 NPC(Neutral Point Clamped), 3-level VSI
14	冷却方式 Type Of Cooling	强制风冷 Forced Air Cooling
15	外部通讯接口 Extermal Communication Interface	RS485、RS232
16	保护功能 Protetion Function	过载保护、欠载保护、过压保护、欠压保护、短路保护等 Overload, underload, over voltage protection, under voltage protection, Short circuit fault,etc.
17	输出侧谐波 load Side Harmonic Distortion	THDv≤5%
22	效率 Efficiency	≥96.5%
23	功率因数 Power Factor	>0.95
24	控制方式 Control Mode	多点V/F 控制、矢量控制 V/F Control,Vector Control
25	进出线方式 In/Outlet format	上进上出 Top in, Top out 下进下出 Bottom in, Bottom Out

无源滤波器 Passive Filters

规格/型号 Specifications/Model	DPCLHF-110～630-3/4
执行标准 Execution Standards	GB/T14549-1993

● 简介 Introdution

无源滤波器用于减小电流谐波,使总谐波失真系数小于16%或10%。此滤 波器与直流电抗器一起使用,性能水平仍可进一步改进,谐波失真可减小至5% 以下。

本产品有以下优势:

- 高效降低谐波电流；
- 在关键应用运行过程中，延长设备使用寿命，提供系统可靠性；
- 采用紧凑、轻型的滤波器设计理念；
- 可直接和原先已经安装好的直流电抗、EMC/EMI滤波器等同时使用。

Passive Filters are deployed to minimize the distortion factor of electric current harmonic waves to 10% or 16%. The filters are to be utilized with DC reactors to further reduce the distortion factor to less than 5%.

The product exhibits the following distinguished characteristics:

- Effective reduction of harmonic current;
- Prolong equipment longevity and provide systems reliability during the course of strenuous operation;
- Deploy compact, lightweight filter design concepts;
- Can be used simultaneously with dc resistance and EMC/EMI filters.

● 结构尺寸 Structural Dimensions

名称(选件代码) Name(assigned code)	型号 Type	功率（kW） Power	尺寸（宽×深×高，mm） Dimension(W×D×H,mm)	重量（kg） Weight	散热量（kW） Cooling capacity
无源滤波器 Passive filters （LHF）	DPCLHF-110-3/4	110	620×620×2200	200	1.1
	DPCLHF-132-3/4	132	620×620×2200	230	1.32
	DPCLHF-160-3/4	160	620×620×2200	255	1.6
	DPCLHF-200-3/4	200	620×620×2200	324	2
	DPCLHF-250-3/4	250	640×620×2200	405	2.5
	DPCLHF-315-3/4	315	900×620×2200	510	3.15
	DPCLHF-400-3/4	400	900×620×2200	647	4
	DPCLHF-500-3/4	500	1700×760×2200	808	5
	DPCLHF-630-3/4	630	1900×760×2200	1018	6.3

● 技术参数 Technical Parameters

一般特性 General Characteristics	
运行环境湿度 Operating environment humidity	5% ~ 85%，无冷凝 Zero Condensation
运行环境温度 Operating temperature	5 ~ 40℃，无降容，最高可达55℃，每升高1℃，电流降容3% 5-40℃,zero de-rating up to 55℃;3% de-rating for every 1℃ temperature increase
运行海拔高度 Operating altitude	1000m无降容，1000 ~ 4000m，每升高1000m，电流降容5% 1000m,zero de-rating; between 1000-4000m,5% de-rating for every increase of 1000m
电气特性 Electrical Characteristics	
电压范围 Vottage range	400V / 480V
额定电压 Nominal vottage	380 ~ 415V / 440 ~ 480V ± 10%
工作频率 Operating frequency	50/60 Hz ± 5%
过载能力 Overioad	1.5倍额定电流 1.5 times nominal current
效率 Efficiency	99%(1%的热损失 1% heat loss)
THDI	⩽ 10%
Cos，Φ	在75%的线路电流时, 0.65；在100%的线路电流时, 0.99；在150%的线路电流时, 1 At 75% line current, 0.65;at 100% line current, 0.99;at 150% line current, 1
防护等级 Protection degree	IP 23
第三方认证 The third party certification	CCS/DNV

分档投切滤波器 Group Switching Filter

规格/型号 Specifications/Model	DPCLHFR-110~400-3/4
执行标准 Execution Standards	GB/T14549-1993、GB/T 12747-2004、GB/T15576-1995

● 简介 Introdution

分档投切滤波器 由数组小容量LC滤波支路组成，实时检测负载，根据负载情况分组投切LC滤波支路，滤波同时防止平台电网无功过补偿。分档级别为容量20-80%之间（10%为一档），并可实现满载100%运行，各档位切换时，可根据变频设备运行电流实现手动和自动两种操作方式切换。

Group switching Filter is assembled with an array of small capacity LC filters branch， to real- time detection of load currents and according to the load current switch the LC branch to filter and prevent over-compensating situation.The step level is between 20 and 80 % capacity (10 % is a step), and can achieve 100 % operation, and it can switch between manual and automatic operation according to the operating current of the frequency conversion equipment.

● 技术规范 Specification Standards

一般特性 General Characteristics	
运行环境湿度 Operating environment humidity	5% ~ 85%，无冷凝 Zero condensation
运行环境温度 Operating ambient temperature	5~40℃，无降容，最高可达55℃，每升高℃，电流降容3% 5~40℃, no derating up to 55℃, Increased by 1℃, the current derating 3%
运行海拔高度 Operating altitude	1000m无降容，1000~4000m，每升高1000m，电流降容5% 1000m without derating, 1000~4000m, Increased by 1000m, current derating 5%
电气特性 Electrical Characteristics	
电压范围 Vottage range	380V / 480V
额定电压 Rated vottage	380~415V / 440~480V ± 10%
工作频率 Operating frequency	50/60 Hz ± 5%
过载能力 Overioad	1.5倍额定电流 1.5 times the rated current
效率 Efficiency	99%（1%的热损失 1% heat loss）
THDI	⩽ 10%
Cos ϕ	在75%的线路电流时，0.65； At 75% of the line current, o.65; 在100%的线路电流时，0.99； At 100% of the line current, 0.99; 在150%的线路电流时，1 At 150% of the line current，1
分档设置 Split file settings	20~100%，10%为一档 Binning setting 0 to 100%, 10% of a step
投切方式 Swiching mode	自动/手动，自动方式根据电网的负载变化，实时投切滤波电容器组 Auto/Manual mode，aotumatic mode depending on the load power changing, real-time switching or disconcerting the filter branch.
冷却方式 Cooling	自然风冷或强制风冷 Nature air cooling or forced air cooling
进出线方式 Inlet and outlet	下进下出 Bottom cable entry，line side/ load side
维护方式 Maintenance mode	盘前维护 Front panel maintenance
保护功能 Overload production	过载保护，短路保护 Short circuit protection
防护等级 Protection degree	IP 23
第三方认证 The third party certification	CCS/DNV

● 结构尺寸 Structural Dimensions

名称(选件代码) Name(assigned code)	型号 Type	功率（kW） Power	额定电流(A) Rated Current	尺寸（宽×深×高，mm） Dimension(W×D×H,mm)	重量（kg） Weight	散热量（kW） Cooling capacity
分档投切无源滤波器 Grouping switching Passive filters （LHFR）	DPCLHFR-110-3	110	180	800X600X2200	360	1.1
	DPCLHFR-132-3	132	216	800X600X2200	400	1.32
	DPCLHFR-160-3	160	289	800X600X2200	450	1.6
	DPCLHFR-200-3	200	370	800X600X2200	540	2
	DPCLHFR-250-3	250	432	800X600X2200	650	2.5
	DPCLHFR-315-3	315	578	1000X700X2200	650	3.15
	DPCLHFR-400-3	400	650	1000X700X2200	650	4

有源滤波器 Active Power Filter

规格/型号 Specifications/Model	OTSAPF-100～450
执行标准 Execution Standards	GB/T14549-93

● 简介 Introdution

有源滤波器并联在电网低压侧中，用于治理电流治理问题，主要通过外部互感器检测电网中的谐波，逆变产生反相的补偿电流，能够动态滤除电网中的谐波，可完美的解决电网谐波治理问题。具有智能化控制，高效率，快速动态响应，稳定可靠的运行状态等特点。有源滤波器该产品分整柜式及模块化两类，能够适应不同场合的需要。整柜式扩容可采用并柜形式，模块化产品扩容可在柜内增加功能模块，在一定范围内不需要增加新的柜体。

The active power filters are used for harmonic compensation in low voltage power system networks. APF creates an inverted compensation current capable to dynamically filter out grid harmonic detection via an external transformer detecting and testing grid harmonic to perfectly resolve grid harmonics management problems. APF has the characteristics of intelligent control, high efficiency, fast dynamic response, stable and reliable operation status. The active power filter structure are integrated or modules, which can meet the different needs. Integrated APF capacity expansion can be in the form of Combined cabinet, modular product expansion can be added in the cabinet, and no need to add a new cabinet.

- 可以同时滤除2~50 次范围内的全部或选定次数的谐波。
- 对于每个补偿序列可设置输出比例0~100%。
- 全响应时间小于20ms。
- 瞬间225%额定容量涌流补偿，治理闪变和电压波动。
- 可以只滤波，或者同时滤波和无功补偿。
- 可自动消除系统谐振。
- 具有自动限流功能，不会发生过载。
- 设计选型简单，不需要进行详细的电网分析，只需测量谐波电流的大小。
- 并联安装方式，安装简单，方便，易于扩展，可多台并联

- Global compensation or individual conpensation from H2 to H51;
- Compensation sequence can be assigned from a scale of 0 to 100%;
- Full Response time is less than 20ms
- Instantaneous 225% surge of rated capacity compensation; governance flicker and voltage fluctuations;
- System can automatically eliminate resonance;
- Automatic current limiting function; prevention of overloading;
- Design selection simple, detailed analysis of the grid not required, measuring the size of the harmonic currents would
- suffice;
- Parallel installation, easy to install, convenient, easy to expand, can be more than one parallel.

● 结构尺寸 Structural Dimensions

名称 Name	型号 Model	补偿电流（A） Congpensation Current	尺寸（宽×深×高，mm） Dimension(W×D×H,mm)	重量（Kg） Weight	散热量（KW） Heat Output
有源滤波器 Active Filter	OTSAPF-100	100	600×600×2150	300	3
	OTSAPF-150	150	600×600×2150	353	5
	OTSAPF-300	300	800×600×2200/640×800×2200	500	9
	OTSAPF-450	450	800×600×2300/640×800×2300	620	11
	OTSAPF-600	600	800×600×2400/640×800×2400	700	13

● 技术参数 Technical Parameters

一般特性 General Characteristics	
运行环境湿度 Operating Environment Humidity	最大95%，无冷凝 Maximum 95%, zero condensation
运行环境温度 Operating Ambient Temperature	0～40℃
运行海拔高度 Operating Altitude	1000m以下 Below 1000m
电气特性 Electrical Characteristics	
电压范围 Voltage Range	380～480V±15%
工作频率 Operating Frequency	50/60 Hz±3%
THDI	≤ 5%额定容量 ≤ 5% of rated capacity
滤波范围 Filter the Range of	2～51次谐波 2 to 51 harmonics
响应时间 Response Time	＜20ms
补偿阶跃变化谐波全响应时间 Harmonics Compensationg Step Change Response Time	2.25倍额定容量输出 2.25 times the rated output capacity
功率因数校正 Power Factor Correction	可设定 Can be set
过载保护 Overload Protection	自动限流在100%额定输出 Automatic current limiting at 100% of rated output
IGBT频率 IGBT Frequency	≥15 kHz
界面显示 Screen Displays	2行，20字符/行 2 lines, 20 characters / line
操作按钮 Operation Button	运行，停止，设置，确认 Run, stop, set, confirm
指示灯 LED	运行（绿） Operation(green)
运行方式 Stand-alone Operation Mode	单机，并联 Parallel
防护等级 Protection degree	IP 23
第三方认证 The third party certification	CCS/DNV

中央控制柜 Central Control Panel

规格/型号 Specifications/Model	DPCPM300/400

● 简介 Introdution

中央控制柜与变频器通过总线连接形成一个通讯网络，对平台油井控制设备进行集中监控。中央控制柜用于实时监控所有运行中的变频器机组，用户可以通过控制柜上的计算机人机操作界面，对所有机组进行启停操作和频率调节，提供过载、欠载、短路等保护功能，并且所有机组的运行数据绘以曲线趋势实时显示并永久保存，方便用户随时查。预留通讯接口，可加装数据远传及专家支持系统。

Central control panel and VSD formed a communication network by connecting with the main circuit; Centralized control of platform oil well control equipment. Central control panel implements real-time monitoring on all operating inverters, end-users can use the manually operated on the cabinet to halt operations and regulate frequencies. Provide overload, under load, short circuit protection, etc. All operation data will be displayed via real-time trend curve and permanently stored, facilitating convenient and momentary households inquires.

● 技术参数 Technical Parameters

工作条件 Woking Conditions		
1	安装位置 Installation location	室内 Indoor
2	环境温度 Ambient temperature	最大50℃/ 最小0℃ maximum 50℃/minimum 0℃
3	相对湿度 Relative humidity of	40% ~ 97%
4	海拔高度 Altitude	海平面50米 Sea level 50m
5	气候 Climate	海上、潮湿、有盐碱和腐蚀 Maritime, humidity, salinity and corrosion
中央控制柜技术数据表 Central Control Panel Technical Data Sheet		
6	型号 Model	DPCPM300/400
7	外形尺寸 Dimensions(mm)	600W×650D×2000H
8	重量 Weight (kg)	100kg
9	防护等级 Protection class	IP23
10	第三方检验 3rd party inspection	CCS
11	使用年限(年) Useful life (years)	连续≥20年 Consecutive≥20 years
12	工作电源 Power supply	380/480/690V（单相 Single phase）/10A
13	操作系统 Operating system	Windows
14	PLC控制模式 PLC control modes	有 Are
15	热冗余功能 Heat redundancy function	有 Yes
16	历史数据记录功能 Historical data recording function	有（可存放所有电泵运行数据，并滚动刷新） Yes(all pump operating data can be stored, and scroll refresh)
17	历史故障记录功能 Fault history function	有（显示最近1000次的报警记录） Yes(displays the most recent alarm record 1000)
18	历史数据库 Historical database	有（可存放所有电泵运行数据，并滚动刷新） Yes(all pump operating data can be stored, and scroll refresh)
19	进线方式 Cable entry into the line	下进线、盘前维护 Before the disk maintenance
20	PROFIBUS 通讯接口	有 Yes
中央控制柜技术数据表 Central Control Panel Technical Data Sheet		
21	铭牌文字 Nameplate Text	中文Chinese
22	数据采集内容 Data collection content	电泵运行电压、电流以及开关状态等参数 Pump operating voltage and current and switch status and other parameters
23	实时曲线功能 Real-time curve function	有 Yes
24	打印机 Printers	有（惠普彩色喷墨DeskJet系列）Yes(HP color inkjet DeskJet series)
25	UPS电源 UPS power supply	有 Yes
26	专用通讯电缆 Special communication cable	有(PROFIBUS专用现场总线电缆) Yes(PROFIBUS fieldbus dedicated cable)
27	井下传感器接口 Down-hole sensor interfaces	(RS485) Yes
28	电机保护功能 Motor protection	过载、欠载、过压、欠压、电流不平衡等 Overload,under-load,overvoltage,under-voltage,current imbalance
29	与变频器通讯端口 Inverter communication port	RS485(PROFIBUS)
30	与平台中控室通讯 Internet communication with central control	RS485(MODBUS)
31	预留井扩展 Extension wells have reserved	有 Yes

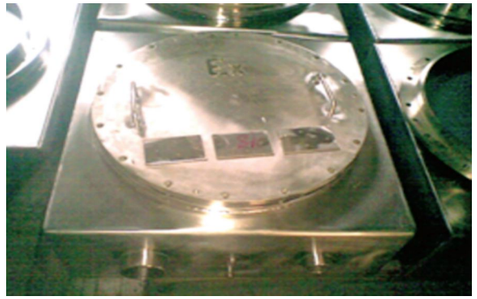
井口接线箱 Wellhead Junction Box

规格/型号 Specifications/Model	DPC-BJXExdIIBT4/CT4/BT6/CT6
执行标准 Execution Standards	GB3836.1-2000 GB3836.2-2000

● 简介 Introdution

井口接线箱使用不锈钢316L材质焊接而成，具有防爆功能，是各种高危场所使用的特种设备，主要使用在化工厂、仓库、加油站、石油平台、石油开采、炼油及其他电气设备。井口接线箱可以安装在户外，防护等级IP56，易于安装和操作。

Wellhead junction box deploys stainless steel 316L featuring explosion-proof and deployed in chemical plants, warehouses, gas stations, oil platforms, oil mining and refining, among other electrical equipment. Can be installed outdoors, protection rating IP56+, easy installation and operation.



使用环境条件：

- 海拔高度：≤2000m;
- 工作环境湿度：-20℃～40℃；
- 周围空气相对湿度不大于95%（+25℃）；
- 适用于爆炸性气体混合物危险场所：1 区、2 区；
- 适用于爆炸性气体混合物温度组别：T1～T4 或T1～T6；
- 适用于爆炸性气体混合物危险分类：ⅡB, ⅡC。

Environmental Administering Conditions:

- Altitude: ≤2000m;
- Operating humidity: -20℃~40℃;
- Ambient air relative humidity less than 95% (+25℃);
- Suitable for sites housing dangerous cargo and explosive gas mixtures: 1 and Zone 2;
- Suitable for explosive gas mixture temperature categories: T1~T4 or T1~T6.
- Suitable for explosive gas mixtures dangerous cargo category: ⅡB, ⅡC.

● 结构尺寸 Structural Dimensions

型号代码 Model Code	W(宽) mm	D(深) mm	H(高) mm
ExdIIBT4 5000V 150A	630	630	300
ExdIIBT4 5000V 200A	630	630	300
ExdIIBT4 5000V 250A	630	630	300
ExdIICT4 5000V 150A	630	630	300
ExdIICT4 5000V 200A	630	630	300
ExdIICT4 5000V 250A	630	630	300
ExdIIBT6 5000V 150A	630	630	300
ExdIIBT6 5000V 200A	630	630	300
ExdIIBT6 5000V 250A	630	630	300
ExdIICT6 5000V 150A	630	630	300
ExdIICT6 5000V 200A	630	630	300
ExdIICT6 5000V 250A	630	630	300

● 技术参数 Technical Parameters

额定电压 Raled Voltage	AC5000V
防爆等级 Explosion Levels of	ExdIICT4 / BT4 / BT6 / CT6
额定电流 Rated Current	250A; 200A; 150A
防护等级 Protection Rating	IP56
防腐等级 Corrosion Rating	WF2
标牌语言 Sign Language	中文、英文 Chinese, English
进线方式 Cable Entry	下进线 Under line
原材料材质 Raw Materials	316 L
最小尺寸 Minimum Size（mm）	630×630×300

干式变频升压变压器 Dry-type Variable Frequency Step-up Transformer

规格/型号 Specifications/Model	DPC-PSCD-132~630
执行标准 Execution Standards	GB/T10228-2008、GB1094

● 简介 Introdution

干式变频升压变压器主要用于变频器输出端，作为在海洋平台潜油电泵的升压变压器，适用一次侧电源为变频电源，频率范围为20~80Hz，一次绕组电压可为AC3P、3W，380V/480V/690V，二次绕组为多分接型式，档位数量和档位电压根据容量不同而不同。

Dry-type variable frequency step-up transformer is primarily deployed at the VSD output, as an offshore platform submersible pump boosting transformer and power supplier for the VSD; operating with frequency range of 20~80Hz. Primary winding voltage can be AC3P, 3W, 380V / 480V / 690V, the secondary winding is multi-drop type, gears number and gear voltage varies according to different capacity.

● 结构尺寸 Structural Dimensions

各容量尺寸不大于以下要求（W×D×H），单位：mm

Capacity not exceeding than the following requirements （W×D×H），Unit：mm

132 KVA	1200×890×1150	315 KVA	1380×1000×1450
160 KVA	1200×890×1150	400 KVA	1420×1020×1380
200 KVA	1250×930×1280	500 KVA	1550×1150×1650
250 KVA	1280×960×1300	630 KVA	1600×1150×1650

● 技术参数 Technical Parameters

- 长期运行频率：20~80Hz，能够与变频器配套使用；
  输入电压为380V时，25Hz时输入电压268V铁芯不饱和；（25Hz以下运行时间不超过30秒）；
  输入电压为480V时，25Hz时输入电压340V铁芯不饱和；（25Hz以下运行时间不超过30秒）；
  输入电压为690V时，25Hz时输入电压488V铁芯不饱和；（25Hz以下运行时间不超过30秒）；
- 原边电压：3P、380\480\690VAC；
- 副边电压及电流：

- Perennial frequency: 20~80Hz, capable auxiliary to frequency converter;
  Input voltage 380V, 268V input at 25Hz creates unsaturated iron core (below 25Hz, running time not exceeding 30 seconds)
  Input voltage 480V, 340V input at 25Hz creates unsaturated iron core (below 2SHz, running time not exceeding 30 seconds);
  Input voltage 690V, 488V input at 25Hz creates unsaturated iron core; (below 25Hz, running time not exceeding 30 seconds);
- Primary voltage: 3P, 380 \ 480 \ 690VAC;
- Secondary voltage and current:

132 KVA							
电压 Voltage（V）	770	850	935	1030	1130	1240	1360
电流 Current（A）	81.5	81.5	81.5	74.0	67.4	61.5	56.0
电压 Voltage（V）	1490	1640	1800	1980	2170		
电流 Current（A）	51.1	46.5	42.3	38.5	35.1		

160 KVA						
电压 Voltage（V）	935	1030	1130	1240	1360	
电流 Current（A）	89.7	89.7	81.8	74.5	67.92	
电压 Voltage（V）	1490	1640	1800	1980	2170	2387
电流 Current（A）	62	56.32	51.32	46.65	42.57	38.7

200 KVA							
电压 Voltage（V）	935	1030	1130	1240	1360		
电流 Current（A）	93.1	93.1	93.1	93.1	84.9		
电压 Voltage（V）	1490	1640	1800	1980	2170	2387	2626
电流 Current（A）	77.5	70.4	64.2	58.3	53.2	48.4	44.0

250 KVA								
电压 Voltage（V）	1030	1130	1240	1360				
电流 Current（A）	106.1	106.1	106.1	106.1				
电压 Voltage（V）	1490	1640	1800	1980	2170	2387	2626	2890
电流 Current（A）	96.9	88.0	80.2	72.9	66.5	60.5	55.0	49.9

315 KVA								
电压 Voltage（V）	1030	1130	1240	1360				
电流 Current（A）	133.7	133.7	133.7	133.7				
电压 Voltage（V）	1490	1640	1800	1980	2170	2387	2626	2890
电流 Current（A）	122.1	110.9	101.0	89.7	83.8	76.2	69.2	62.9

400 KVA										
电压 Voltage（V）	1030	1130	1240	1360						
电流 Current（A）	140.8	140.8	140.8	140.8						
电压 Voltage（V）	1490	1640	1800	1980	2170	2387	2626	2890	3179	3496
电流 Current（A）	140.8	140.8	128.3	116.6	106.4	96.7	88.0	80.0	72.6	66.1

500 KVA										
电压 Voltage（V）	1240	1360	1490							
电流 Current（A）	160.4	160.4	160.4							
电压 Voltage（V）	1640	1800	1980	2170	2387	2626	2890	3179	3496	3846
电流 Current（A）	160.4	160.4	145.8	133.0	120.9	110.0	100.0	90.8	82.6	75.1

630 KVA										
电压 Voltage（V）	1240	1360	1490							
电流 Current（A）	202.0	202.0	202.0							
电压 Voltage（V）	1640	1800	1980	2170	2387	2626	2890	3179	3496	3846
电流 Current（A）	202.0	202.0	183.7	167.6	152.3	138.5	125.8	114.4	104.0	94.6

- 阻抗电压：≤4%；
- 冷却方式：自然风冷；
- 绝缘等级：F级；
- 防护等级：IP23；
- 铭牌材质及安装位置：316不锈钢材质（内容按GB/T3528-93要求，其中包括调压说明，并注明设备号）；且铭牌必须安装在开门的一侧；
- 外壳：应做防锈防腐处理，外观颜色为灰色RAL7035，且必须为单面双开门(正面)；
- 联接组别：原边角接，副边星接，次级中性点不接地；

- Resistance voltage: ≤4%;
- Cooling Method: natural air-cooled;
- Insulation Rating: F;
- Protection Rating: IP23;
- Nameplate Material and installation location: 316 stainless steel (contents according to GB / T3528-93 requirements, including surge description indicating equipment number), plate must be installed in the side door;
- External Casing: antirust embalmed, gray coloring RAL7035, single-sided double door (front).
- Connection groups: principle corner connection, secondary star angle conversion, secondary neutral point grounding not allowed;

油浸式变频升压变压器 Oil-immersed Frequency Srep-up Transformer

规格/型号 Specifications/Model	DPC-S-Y\132~800
执行标准 Execution Standards	GB1094

● 简介 Introduction

油浸式变频升压变压器主要用于变频器输出端，作为于海洋平台潜油电泵升压变压器，适用一次侧电源为变频电源，频率范围为0~80Hz，一次绕组电压可为AC3P、3W，380V/480V/690V，二次绕组为多分接型式，档位数量和档位电压根据容量不同而不同。

Oil-immersed frequency step-up transformer is primarily deployed at the inverter output acting as a submersible pump step-up transformer in offshore platforms. The primary power propels inverter 0-80 Hz frequency alteration and winding voltage servingAC3P, 3W, 380V/480V/690V as well as secondary winding for multi-drop models. The number of gears and voltages varies in accordance to different capacities.

● 结构尺寸 Technical Parameters

各容量尺寸不大于以下要求（W×D×H），单位：mm
Capacity not exceeding than the following requirements （W×D×H），Unit：mm

160 KVA	1380×1300×2000
200 KVA	1380×1350×2200
250 KVA	1550×1450×2300
315 KVA	1550×1450×2300
400 KVA	1600×1450×2300
500 KVA	1650×1450×2300
630 KVA	1700×1600×2350
800 KVA	1800×1700×2350
1000 KVA	1850×1750×2450

● 技术参数 Specification Standards

- 原边电压：3P、380/480/690VAC；
- 副边电压：160~400KVA：3P，850VAC~3429VAC；500KVA以上：3P，1030VAC~4538VAC
- 额定容量：160KVA、200KVA、250KVA、315KVA、400KVA、500KVA、630KVA、800KVA、1000KVA；
- 运行频率：20~80Hz，能够与变频器配套使用，25Hz以下运行不超过30秒。
  原边380VAC，25Hz时输入283VAC铁芯不饱和；原边480VAC，25Hz时输入340VAC铁芯不饱和；
  原边690VAC，25Hz时输入488VAC铁芯不饱和；
- 冷却方式：油浸式自然风冷；
- 阻抗电压：4%（400KVA以下）；6%（500KVA以上）；
- 联接组别：原边角接、副边星角转换、副边中性点不允许接地；
- 防护等级：变压器为室外安装，防护等级为IP56；
- 冲击耐受：60KV
- 额定输入电流：

- Primary voltage: 3P, 380 / 480 / 690VAC;
- Secondary voltage: 160~400KVA: 3P, 850VAC~3429VAC; 500KVA above: 3P, 1030VAC~45B8VAC
- Nominal Capacity: 160KVA, 200KVA, 250KVA, 315KVA, 400KVA, 500KVA, 630KVA, 800KVA, 1000KVA;
- Operating Frequency: 20~80Hz, capable of supporting the use of the inverter, 25Hz following run no more than 30 seconds. Primary 380VAC, 25Hz 283VAC input core unsaturated; primary 480VAC, 340VAC unsaturated 25Hz core; primary 690VAC; 488VAC input unsaturated 25Hz core;
- Cooling: natural oil-immersed air-cool;
- Impedance voltage: 4% (400KVA or less); 6% (500KVA or more);
- Connection groups: principle corner connection, secondary star angle conversion, secondary neutral point grounding not allowed;
- Protection rating: transformer outdoor installation, protection class IP56;
- Shock tolerance: 60KV
- Rated Input Current:

原边电压(V) Primary Voltage \ 容量(KVA) Capacity	160	200	250	315	400	500	630	800	1000
380	243A	304A	380A	478A	608A	760A	957A	1216A	1519A
480	192A	241A	301A	378A	481A	602A	758A	963A	1203A
690	134A	167A	209A	263A	335A	419A	527A	670A	836A

- 电缆接线箱防护等级为IP56，除了具有输出电缆接线端子外，高低压侧还分别具备地线端子，所有接线端子配备电缆鼻子和必要的连接器件；
- 接线柱增加接线引出排，方便多根电缆的连接；
- 动力电缆和信号电缆进出线均配置防爆填料函；
- 信号缆接线箱内将多功能保护器与压力关断信号串接，油温关断信号与油位关断信号串接。
- Cable junction box protection class IP56, in addition to having an output cable terminals, the high and low voltage sides are equipped with ground terminals; all terminals equipped with snuffles and necessary cables connecting accessories;
- Wiring terminals increase outlets allowing multiple easy cable connections;
- Power and signal cables inlets and outlets are equipped with explosion-proof fillers;
- Signal cables junction box connects multifunctional protection and pressure, oil temperature and level shutdown signals.

160 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	92.3	92.3	92.3	92.3	92.3	70.5	67.3	64.5	61.8	59.3	57.1	54.9	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	42.7	42.7	42.7	42.7	42.7	40.7	38.9	37.2	35.7	34.3	32.9	31.7	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	53.1	51.2	49.5	47.9	46.4	45.1	43.7	42.5	41.3	40.2	39.2	38.2	37.2
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	30.6	29.6	28.6	27.7	26.8	26	25.2	24.5	23.8	23.2	22.6	22	21.5

200 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	92.6	92.6	92.6	92.6	92.6	88.2	84.2	80.6	77.3	74.2	71.4	68.7	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	53.5	53.5	53.5	53.5	53.5	50.9	48.6	46.5	44.6	42.8	41.2	39.7	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	66.3	64.0	61.9	59.9	58.1	56.3	54.7	53.1	51.6	50.3	49.0	47.7	46.5
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	38.3	37.0	35.8	34.6	33.5	32.5	31.5	30.7	29.8	29.0	28.3	27.5	26.9

250 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	115.8	115.8	115.8	115.8	115.8	110.3	105.3	100.8	96.6	92.8	89.2	85.9	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	53.5	53.5	53.5	53.5	53.5	50.9	48.6	46.5	44.6	42.8	41.2	39.7	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	82.9	80.1	77.4	74.9	72.6	70.4	68.3	66.4	64.6	62.8	61.2	59.6	58.1
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	47.9	46.2	44.7	43.3	41.9	40.6	39.5	38.3	37.3	36.3	35.3	34.4	33.6

315 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	145.8	145.8	145.8	145.8	145.8	138.9	132.7	127	121.7	116.9	112.4	108.3	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	84.2	84.2	84.2	84.2	84.2	80.2	76.6	73.3	70.3	67.5	64.9	62.5	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	104.5	100.9	97.5	94.4	91.5	88.7	86.1	83.7	81.3	79.2	77.1	75.1	73.2
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	60.3	58.2	56.3	54.5	52.8	51.2	49.7	48.3	47	45.7	44.5	43.4	42.3

400 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	185.2	185.2	185.2	185.2	185.2	176.4	168.5	161.3	154.6	148.4	142.7	137.5	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	106.9	106.9	106.9	106.9	106.9	101.9	97.3	93.1	89.2	85.7	82.4	79.4	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	132.7	128.1	123.8	119.8	116.2	112.7	109.4	106.2	103.3	100.5	97.9	95.4	93.0
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	76.6	74	71.5	69.2	67.1	65	63.1	61.3	59.6	58	56.5	55.1	53.7

500 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	231.5	231.5	231.5	231.5	231.5	220.5	210.6	193.2	185.5	178.4	112.4	171.8	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	133.7	133.7	133.7	133.7	133.7	127.3	121.6	116.4	111.5	107.1	103	99.2	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	165.8	160.1	154.8	149.8	145.2	140.8	136.7	132.8	129.1	125.7	122.4	119.2	116.3
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	95.7	92.4	89.4	86.5	83.8	81.3	78.9	76.7	74.6	72.6	70.7	68.9	67.1

630 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	291.7	291.7	291.7	291.7	291.7	277.9	265.3	254	243.5	233.8	224.8	216.5	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	168.4	168.4	168.4	168.4	168.4	160.5	153.2	146.6	140.6	135	129.8	125	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	208.9	201.7	195	188.8	183	177.4	172.2	167.3	162.7	158.4	154.2	150.2	146.5
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	120.6	116.5	112.6	109	105.6	102.4	99.4	96.6	93.9	91.4	89	86.8	84.6

800 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	370.4	370.4	370.4	370.4	370.4	352.9	336.9	322.6	309.2	296.9	285.5	274.9	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	213.8	213.8	213.8	213.8	213.8	203.7	194.6	186.2	178.5	171.4	164.8	158.8	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	265.3	256.2	247.7	239.7	232.3	225.3	218.7	212.5	206.6	101.1	195.8	190.8	180.0
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	153.1	147.9	143	138.4	134.1	130.1	126.3	122.7	119.3	116.1	113	110.1	107.4

1000 KVA														
△接	电压（V）	1000	1062	1124	1185	1247	1309	1371	1432	1494	1556	1618	1680	
	电流（A）	463.0	463.0	463.0	463.0	463.0	441.1	421.1	403.2	386.5	371.1	356.8	343.7	
Y接	电压（V）	1732	1839	1946	2053	2160	2267	2374	2481	2588	2695	2802	2909	
	电流（A）	267.3	267.3	267.3	267.3	267.3	254.7	243.2	232.7	223.1	214.2	206.1	198.5	
△接	电压（V）	1741	1803	1865	1927	1988	2050	2112	2174	2236	2297	2359	2421	2483
	电流（A）	331.6	320.3	309.6	299.6	290.4	281.6	273.4	265.6	258.2	251.4	244.8	238.5	232.5
Y接	电压（V）	3016	3123	3230	3337	3444	3551	3658	3765	3872	3979	4086	4193	4300
	电流（A）	191.4	184.9	178.8	173.0	167.6	162.6	157.8	153.4	149.1	145.1	141.3	137.7	134.3

Part 3 第三部分 | 井口控制盘 Wellhead Control Panel

井口控制盘 Wellhead Control Panel

规格/型号 Specifications/Model	0~6000 Psi/抽屉式 Drawer 6000~10000 Psi/抽屉式 Drawer 10000~15000 Psi/抽屉式 Drawer
执行标准 Execution Standards	Q/HS 3025-2014、Q/HSHFZC007-2014

● 简介 Introduction

井口控制盘主要用来控制采油树的地面主阀（MSSV）、翼阀（WSSV）、井下安全阀(SCSSV)、排气阀（GVV）。井口控制盘分为公用模块和单井模块。通过公用模块能对所有井进行控制，单井模块具体控制每一口井。井口控制盘通过电气接口，还能够实现远程控制。

本产品适用于水下采油树、高压气田、高温热采井等油田环境，可以根据不同应用环境，提供专用解决方案。

Well-head control panel is primarily deployed to control the ground extraction main valve (MSSV), flutter valve (WSSV), down-well safety valve (SCSSV) and exhaust valve (GW). The well-head control panel is divided into public modules and single-well modules. The public modules control all incomings to wells while the single-well module would govern individual well. The well-head control panel can also remotely control through an electrical interface.

The product is suitable for submerged extraction, high pressure gas-oilfields and high-temperature extraction wells; applicable to a myriad of oilfield environments, servicing and providing resolutions in accordance to specific environmental conditions.

● 结构尺寸 Structural Dimensions

本产品可根据客户需求定制，推荐标准尺寸如下：

This product can be customized according to customer demands; we recommend the standard size as follows:

序号 Serial	模块数量 No. of Modules (单位: 井 Well)	标准尺寸 Standard Dimensions (W×D×H) (单位: mm)	重量 Wight (单位: kg)
1	1	1500×850×2000	1500
2	4	2000×850×2000	2000
3	6	2300×850×2000	2300
4	8	2300×850×2000	2300
5	12	2610×850×2000	2600
6	16	3020×850×2000	3000
7	20	3520×850×2000	3500
8	24	4640×850×2000	4600
9	32	6140×850×2000	6000

● 技术参数 Technical Parameters

序号 Serial	名称 Name	井口地面安全系统 Surface Safely Systems
1	控制井口数量 Number of mum-well	多井 Control wellhead
2	控制方式 Control	气控、液控 Gas control, pilot
3	使用环境 Enviroment	海洋、陆地 Marine, land
4	环境温度Ambient Temperature	-35 ℃~+75 ℃
5	防爆区域 Exarea	CLASS 1, Division 1, GROUP IIA
6	动力源 Power Source	AC380/220V±10%,50Hz或仪表气: 0.4~0.8MPa AC380/220V±10%,50Hz or instrument air: 0.4~0.8MPa
7	逻辑控制压力 Logic Control Pressure	0.50~0.80 MPa (70~116psi)
8	地面安全翼阀WSSV控制压力 Wing Ground Safety Valve WSSV Control Pressure	0~40 MPa (0~6000psi)
9	地面安全主阀MSSV控制压力 Ground Safety Main Valve SCSSV/GVV Control Pressure	0~40 MPa (0~6000psi)
10	井下安全阀SCSSV/GVV控制压力 Downhole Safety Valve SCSSV/GVV Control Pressure	0~40 MPa (0~6000psi)
11	撬内连接管线 Connecting Line	316L不锈钢 316L stainless steel
12	撬内连接设备接头 Pry Connected Equipment Joint	00Cr17Ni14Mo2
13	控制箱体 Control Box	316SS系列不锈钢 316SS Series Stainless Steel
14	油箱容积 Tank Volume	90~400 升
15	外形尺寸 Dimensions	根据客户需求定制 According to customers' requirements
16	钣金材料 Sheet Metal Materials	316SS不锈钢或根据客户需求定制 316SS stainless steel or accorfing to customer demand