

Type DD(TA) Elevators Manual



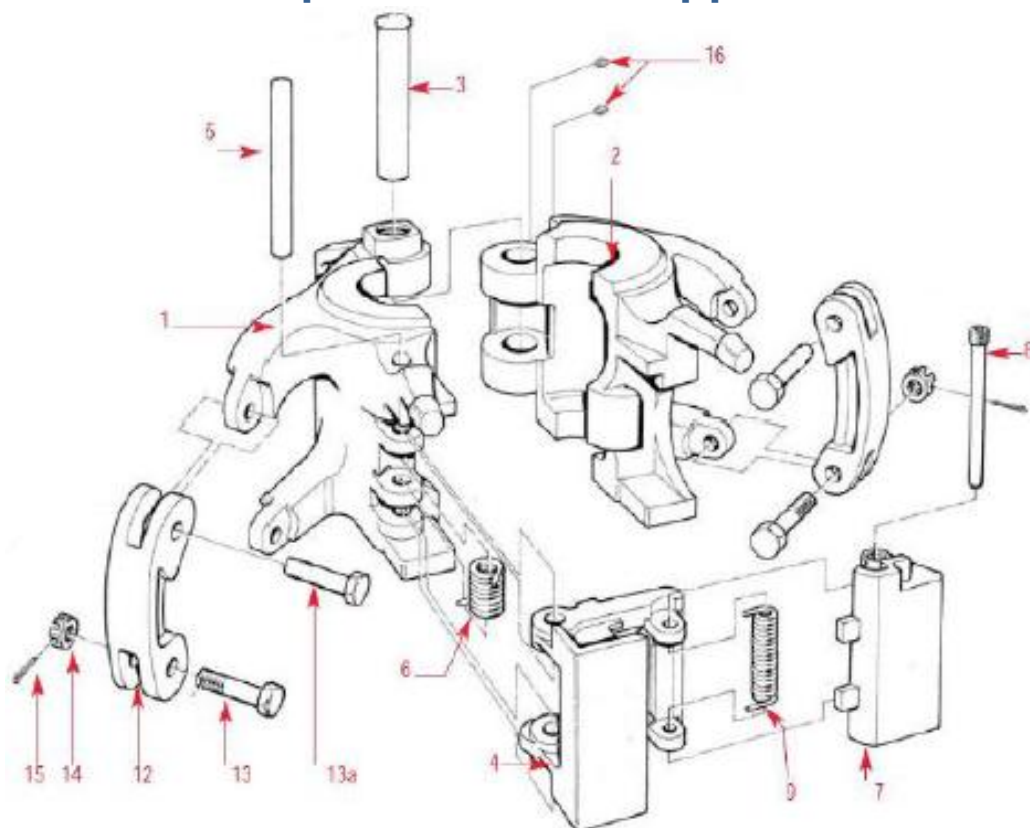


1. Features and Usage Range:

The main body of DD(TA) elevator is made of high-strength alloy steel, processed by special heat treatment as to obtain the good plasticity and tenacity. It is designed in accordance with API Spec 8C for Drilling and Production Hoisting Equipment. Its residual deformation is not more than 0.2% through the max. Test load, and no damage and deformation happen through Non-Destructive Examination after twenty-four hours.

It is a center latch elevator, up to the standard GB/T19190 Petroleum and Natural Gas Industries-Drilling and Production Equipment-Hoisting Equipment and designed on the basis of theory of uniform strength and equipped with the safety device of spring valve. The DD(TA) elevator is reasonable in design, convenient in operation and reliable in safety.

The DD(TA) type elevator is a lifting tool utilized in the drilling and repairing of oil well, applicable to drill pipe, drill collar, tubing or casing.



No.	Name	Qty	No.	Name	Qty
1	Body	1	10	Hinge pin retainer	1
2	Door	1	11	Hinge pin retainer	1
3	Hinge pin	1	12	Link block	2
4	Latch	1	13	Link block bolt	2
5	Latch pin	1	13a	Link block bolt	2
6	Latch spring	1	14	Link block nut	2
7	Latch lock	1	14a	Link block nut	2
8	Larch lock pin	1	15	Cotter pin	2
9	Larch lock spring	1	16	Grease fitting	2



Drill Collar Elevator

Collar O.D	Elevator Recess Dia	(d1) Elevator Bore Dia.		Max. Working Load	
in	in	in	mm	kN	tons
2.7/8	---	2.9/16	65.09	315 585 900 1350 2250	35 65 100 150 250
3.1/8	---	2.13/16	71.56		
3.1/2	---	3.3/16	81		
4.1/8	3.11/16	3.13/16	96.84		
4.3/4	4.1/4	4.3/8	111.13		
5	4.1/2	4.5/8	117.48		
5.1/4	4.3/4	4.7/8	123.83		
5.1/2	5	5.1/8	130.18	1350 2250 150 250	
5.3/4	5.1/8	5.1/4	133.35		
6	5.3/8	5.1/2	139.70		
6.1/4	5.5/8	5.3/4	146.05		
6.1/2	5.7/8	6	152.40		
6.3/4	6	6.3/16	157.16		
7	6.1/4	6.7/16	163.51		
7.1/4	6.1/2	6.11/16	169.86		
7.1/2	6.3/4	6.15/16	176.21		
7.3/4	7	7.3/16	182.56		
8	7.1/4	7.7/16	188.91		
8.1/4	7.1/2	7.11/16	195.25		
8.1/2	7.3/4	7.15/16	201.61		
9	8.1/8	8.3/8	212.73		
9.1/2	8.5/8	8.7/8	225.43		
9.3/4	8.7/8	9.1/8	231.78		
10	9.1/8	9.3/8	238.13		
10.3/4	9.5/8	10.1/8	257.18		
11	10.1/8	10.3/8	263.53		
11.1/4	10.3/8	10.5/8	268.88		

Drill Pipes Elevators

Type	Tool Joint Designation Reference	Drill Pipe size and style	Elevator Sign	Max. Working Load			
				kN	Tons		
63x69/ □	NC26(2.3/8IF)	2.3/8EU	2.3/8EU	900	100		
76x86/ □	NC31(2.7/8IF)	2.7/8EU	2.7/8EU				
92x103/ □	NC38(3.1/2IF)	3.1/2EU	3.1/2EU				
	NC40(4FH)						
105x109/ □	NC26(4FH)	4IU	4IU				
105x122/ □	NC46(4IF) 4.1/2FH	4EU	4EU				
118x122/ □		4.1/2IU	4.1/2IU				
118x122/ □		4.1/2IEU	4.1/2IEU				
118x134/ □	NC50 (4.1/2IF)	4.1/2EU	4.1/2EU			1125	125
131x134/ □		5IEU	5IEU			1350	150
134x134/ □	5.1/2FH	5IEU	5IEU	2250	250		
131x134/ □							
144x149/ □	5.1/2FH	5.1/2IEU	5.1/2IEU				

Tubing Elevators

Tubing Type	Type	Tubing O.D	Dia. of Bore		Max. Load	
		in	D1	D2	tons	kN
NU	29/ □	1.05	28.58	28.58	35	315
	35/ □	1.315	35.31	35.31		
	44/ □	1.66	44.04	44.04		
	50/ □	1.90	50.39	50.39		
	62/ □	2.3/8	62.31	62.31		
	75/ □	2.7/8	75.01	75.01		
	90/ □	3.1/2	90.88	90.88	65	585
	103/ □	4	103.58	103.58		
	116/ □	4.1/2	116.66	116.66	100	900
	139/ □	5	129.36	129.36		
	29X36/ □	1.05EU	36.12	36.12	125	1125
	35X40/ □	1.315EU	40.08	40.08		
	44X49/ □	1.66EU	48.82	48.82		
	50X56/ □	1.90EU	55.96	55.96	250	2250
	63X69/ □	2.3/8EU	68.66	68.66		

EU	75X82/ □	2.7/8EU	81.36	81.36
	91X98/ □	3.1/2EU	98.02	98.02
	104X111/ □	4EU	110.72	110.72
	117X123/ □	4.1/2EU	123.42	123.42

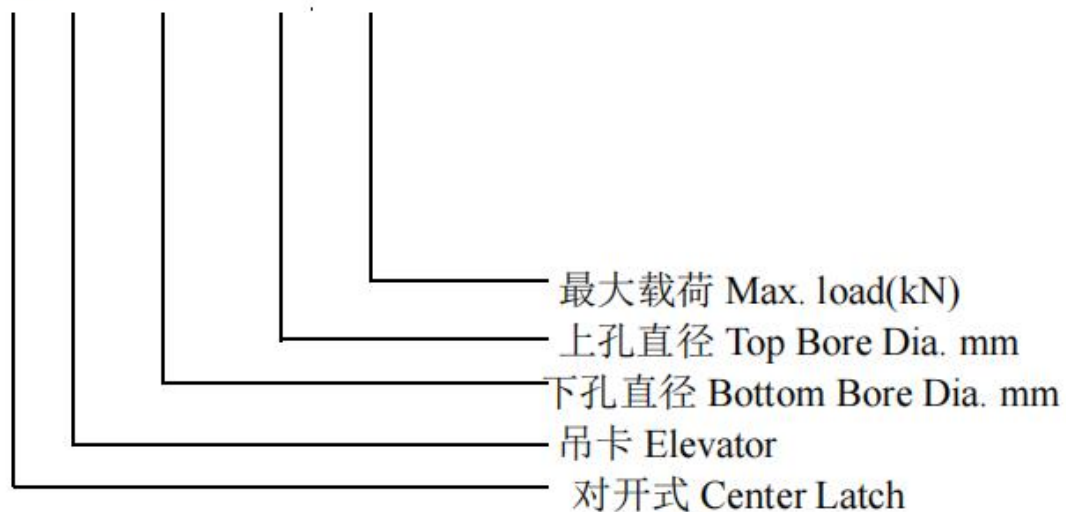
According to table 1C of API Spec 8C , the dia. of bottom bore(d2) of the upset tubing elevator could be processed the same as the dia. of top bore(d1).

Casing Elevators

Type	Casing O.D	Max. Working Load	
		kN	Tons
104/ □	4	900	100
116/ □	4.1/2		
130/ □	5		
142/ □	5.1/2		
171/ □	6.5/8	1125	125
181/ □	7	1350	150
197/ □	7.5/8		
197/ □	7.3/4	2250	250
222/ □	8.5/8		
248/ □	9.5/8	3150	350
278/ □	10.3/4		
303/ □	11.3/4		

3. Type Formation and Its Representative Meaning

DD □ × □/ □



4. Instruction.

1. Select elevator, which correspond with the spec of drill collar.
2. Before operation, check operation adaptability of elevator when shutting or opening, and reach ability for latch, and its latch whether be clipped or not. If there are abnormal phenomena, quickly remove it.
3. When operating if elevator clips drill collar, check each part whether reach or not. Especially the latch assembly should be reliable It can be operated for lifting or lowering only at the case of eight clipping of each latch.
4. Each main part is checked strictly though flaw detection before dispatch; after usage for a period or reparation, check each main part whether flaw or vestige happens, if happens, do not use it.
5. Elevator should vertical hang in working.
6. Over-max load (total of moving load and non-moving load) is forbidden.
7. Use is strictly forbidden when the elevator is found to have cracks or excessively worm-out surfaces of load-bearing(the total worn-out quantity \geq 2mm).

5. Maintenance

1. Before usage, put it at dry, venting place to prevent from rusting and damaging.
2. After usage, clean oil dirt at elevator, check each part whether flew, vestige happens or not, and coat clean lubricating grease, and put it at dry place in house.
 - The elevator must not be welded and repaired without the technical information of our corporation. In case the repairing factory conduct strict and proper maintenance and inspection in conformity with standard API RP 8B “recommended process of inspection and maintenance of the elevator”, the elevator can be welded or repaired.
 - When elevator grip pipe, latch lock must be in correct place to prevent it from skidding
 - Don't select the spare parts manufactured by other companies. Otherwise our company is not responsible for quality question.



合格证

INSPECTION CERTIFICATE

产品名称: Product Name:	TA/100 吊卡 TA/100 Elevator
产品型号: Product Type:	2.3/8 " EU
产品数量: Product Quantity:	1 套(set)
产品编号: Product No:	2204032

本产品按 API Spec 8C 标准设计制造，经检验合格准予出厂。

The product is designed and manufactured in according to API Spec 8C. It has been qualified through inspection and allowed to dispatch.



检验员: 秦旭
Inspector: Qin Xu

日期: 2022.04.13
Date:

化学元素分析报告

Analysis Report of Chemical Element

报告编号 Report No.: HYR2022011902

产品标准: API Spec 8C

材质 Material		ZG(J)8127		炉号 Lot No.		500-220119-02	
检验方法 Inspection method		光谱分析 Spectral analysis		设备名称 Equipment name		光谱仪 Spectrometer	
设备编号 Equipment serial number		D-GPY-01		设备型号 Equipment model		LabSpark750B	
检验标准 Inspection standard		ASTM A751		环境温度 Environment temperature		23℃,45%	
化学成分 Chemical element	元 素 Element		标准值 Standard values				实测值 The measured values
			ZG(J)8127				
	1	碳 C (%)		0.250-0.320		0.282	
	2	硅 Si (%)		0.330-0.420		0.360	
	3	锰 Mn (%)		0.600-1.000		0.751	
	4	磷 P (%)		≦0.035		0.014	
	5	硫 S (%)		≦0.035		0.013	
	6	铬 Cr (%)		0.400-0.800		0.651	
	7	镍 Ni (%)		0.400-0.800		0.498	
	8	钼 Mo (%)		0.150-0.300		0.257	
	9						
	10						
结论 Conclusion		合格 Qualified					
试验员 Inspector		曹蕾 Cao Lei		日期 Date		2022.04.13	
审核 Auditor		秦旭 Qin Xu		日期 Date		2022.04.13	

机械性能检验报告

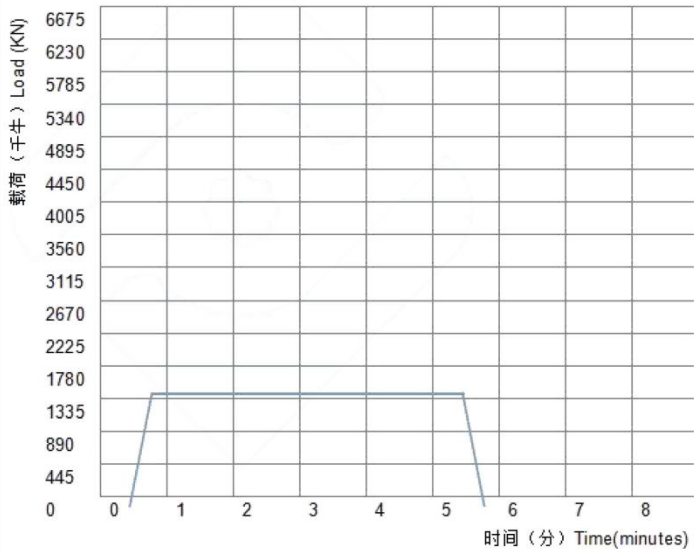
Inspection Report of Mechanical Properties

报告编号 Report No.: PR2022065 产品标准 Product standard: API Spec 8C
 热处理号 Heat No.: HT22065 产品名称 Product name: TA/100 吊卡 Elevator
 收样日期 Receive date: 2022.01.23 样本名称 Sample name: 拉伸试样 Tensile 冲击试样 Impact
 试样材料 Sample material: ZG(J)8127 试验标准 Test standard: ASTM A370
 环境温度 Environment temperature: 25℃、49%

试样编号 Sample No.		1#	
炉号 Lot No.			
拉伸 试验 Tensile Test		标准值 Standard values	实际测量值 The measured values
	试样尺寸 Sample size(mm)	Φ12.5-Φ12.7	Φ12.6
	抗拉强度σb Tensile strength(MPa)	≥ 765	810
	屈服强度σs Yield strength(MPa)	≥ 650	720
	延伸率δ Elongation(%)	≥ 17%	23%
	截面收缩率 Z Cross section shrinkage(%)	≥ 35%	43%
冲击 试验 Impact Test	温度 Temperature(℃)	-20℃	-20℃
	缺口形状 Gap form	V 型	V 型
	试样规格 Sample size (mm)	10×10×55	10×10×55
	夏比冲击功 AK Charpy impact energy(J)	≥ 32	59/60/61
	平均值 Average (J)	≥ 42	60
结 论 Conclusion		合格 Qualified	
试验员 Tester	杨艳萍 Yang Yanping	日期 Date	2022.04.13
审核 Auditor	蒋 栋 Jiang Dong	日期 Date	2022.04.13

载荷试验报告

Load Test Report

产品名称 Part name	TA/100 吊卡 TA/100 Elevator	规格型号 Type	2.3/8 " EU
产品编号 SR No.	2204032		
试验设备 Test equipment	载荷试验机 Load Testing Machine	试验管径 Test caliber	2.3/8 " EU
试验项目 Test project	<input type="checkbox"/> 卡持试验 Card holds test <input type="checkbox"/> 型式试验 Pattern test <input checked="" type="checkbox"/> 出厂试验 Exwork test		
试验载荷 Test load	1350 KN	承载时间 Hold time	5 min
试验结果 Test result	 <p>载荷 (千牛) Load (KN)</p> <p>时间 (分) Time(minutes)</p>		
结论 Inspection conclusion	1. 产品、轴销无变形、裂纹等损伤。 1. The product and hinge pin have no deformation and cracks. 2. 产品各转动部件动作灵活，无卡阻现象。 2. The product rotational parts is rotated smoothly, no jam. 3. 开合功能正常，锁紧装置安全可靠，无松动。 3. Opening and closing function is normal and reliable.		
试验员 Inspector	秦旭 Qin Xu	日期 Date	2022.04.13
审核 Auditing	蒋栋 Jiang Dong	日期 Date	2022.04.13

注：需要装配牙板的产品，要求附上啮合记录纸。
 Note: The products with dies need to provide the record paper.

磁粉探伤报告

MAGNETIC PARTICLE INSPECTION CERTIFICATE

产品名称 Part name	TA/100 吊卡 TA/100 Elevator	规格型号 Type	2.3/8 " EU
产品编号 SR No.	2204032		
产品材质 Material	合金钢 Alloy steel	表面状况 Face estate	12.5 ✓
热处理状态 Heat treatment estate	调质 Quench and temper	检验方法 Method	ASTM E709
探伤设备型号 Instrument model	CEW-6000 型	磁化方法 Method of magnetization	连续法 Continuum (复合磁化) (mul-magnetize)
显示方法 Method of display	荧光法 Fluorescence	标准试片的规格 Sensitivity	A1 30/100
黑光灯 Blacklight lamp	≥1000uw/cm ²	验收准则 Acceptance criteria	ASTM E125
缺陷性质、面积、数量级分布情况 Defect property, area, quantity and distribution description	<p>主要承载件区域: The critical areas of main loading part.</p> <p>1.所有阴影区域被认定为危险区域 All the shadow areas identified as critical areas</p> <p>2.所有非阴影区域被认定为非危险区域 All non-shadow areas identified as non-critical areas</p> 		
返修情况 Repair	无 None		
<p>探伤结论和/或评定的质量等级: Conclusion and/or quality grade of assess:</p> <p>经对该工件 MT 探伤, 未发现超标缺陷, 符合 API Spec 8C 要求, 合格。</p> <p>After the MT defect detection of the workpiece, found no defect exceeding meet with API Spec 8C requirements, qualified.</p>			
检验员 Inspector	曹波 Cao Bo	等级 level	2022.04.13
审核 Auditing	秦旭 Qin Xu	等级 level	2022.04.13



上海布莱斯克石油设备有限公司 Topland Oilfield Supplies Ltd.

Jiangsu Petroleum Machinery Co., Ltd

成品检验报告

Inspect Report of Finished Product

合同号 Contract No.: / 产品编号 Product No.: 2204032
产品名称 Product name: TA/100 吊卡 Elevator 规格型号 Spec. and model: 2.3/8 " EU
数量 Qty.: 1 套 (set)

序号 No.	检验项目 Inspection item	检验要求 Inspection requirements	检验方法 Inspection method	检验结果 Inspection result	备注 Remark
1	外观质量 Surface quality	MSS SP-55	目视检验 Visual inspection	√	
2	化学成分 Chemical composition	碳 C 硅 Si 锰 Mn 磷 P 硫 S 铬 Cr 镍 Ni 钼 Mo	审核化学成分分析 报告 Audit analysis report of chemical composition	√	
3	机械性能试验 Mechanical properties test	产品设计的机械性能要求 Mechanical properties requirement of product when design	拉伸试验 Tensile test	√	
4	牙板硬度 Inserts hardness	表面 Surface hardnessHRC58-62 芯部 Center hardnessHRC34-44	硬度测试 Hardness test	/	
5	设备功能 Equipment function	开关正常、转动灵活、无卡滞 Switch normal, flexible rotation, no binding	手动测试 Manual test	√	
6	载荷试验 Load test	所有牙板与管住接触面≥85% Total tooth number insert contact with pipe string ≥85% 出厂试验 Ex-factory test 卸载后设备性能完好 Equipment performance in good condition after unloading 卸载后磁粉探伤合格 Magnetic particle inspection qualified after unloading	压力机上做试验, 目视检验外观, 操作 检查功能, MT 检查 表面裂纹 Test on press machine, visual inspect surface, manual test function, MT test surface crack	/ √ √ √	
7	配件 Accessories	安装数量和方法准确 Install number and method is accurate	目视检验 Visual inspection	√	
8	表面防锈处理 Surface rust proofing	涂防锈油 cover antirust grease	目视检验 Visual inspection	√	
9	产品标记 Product symbol	规格型号、产品编号、生产标准 Spec and model、product code、 produce standard	目视检验 Visual inspection	√	
检验结论 Inspection conclusion: <div>合格 Qualified</div> <div>江苏石油机械有限公司 质检专用章</div>					
检验员 Inspector: 秦旭 Qin Xu			日期 Date: 2022.04.13		

注: 打“√”表示合格, 打“×”表示不合格, 打“/”表示不需要。

Note: “√” means qualified, “×” means unqualified, “/” means not required.



上海布莱斯克石油设备有限公司
Topland Oilfield Supplies Ltd.

Jiangsu Petroleum Machinery Co., Ltd

装箱单
PACKING LIST

产品名称 (Name): TA/100 吊卡 Elevator			
产品型号 (Type) : 2.3/8 " EU			
数 量 (Quantity): 1 套(set)			
序号 No.	产品名称 Production Name	数量 Quantity	备注 Remarks
1	TA/100 吊卡 Elevator	1	TA100 备件包 Spare parts kit
2	锁门弹簧 Latch Spring	1	
3	锁紧手柄弹簧 Latch lock spring	1	
4	螺母 Nut M16	4	
5	螺栓 Bolt M16*60	4	
6	开口销 Cotter Pin 4*28	2	
7	弹性圆柱销 Hinge Pin Retainer 6*80	1	
8	油杯 Grease Fitting 1/8NPT	2	
随机文件 Technical Papers			
1	质量文件 Quality documents	1	
2	说明书 Operation Manual	1	
3	装箱单 Packing List	1	