

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Mud and Cementing Equipment**

with type designation(s)

HP Manifold Components (valves, crossovers, adapters, and other assemblies)

Issued to

**SJ Petroleum Machinery Co., SINOPEC
Jingzhou, China**

is found to comply with

DNVGL-OS-E101 – Drilling facilities, Edition January 2018**Application :****See Page 2.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Houston** on **2020-10-24**This Certificate is valid until **2025-10-23**.for **DNV GL**DNV GL local station: **Wuhan CMC**Approval Engineer: **M. Kevin Mandeville Jr.**

**Meindert van Mierlo
Head of Section**

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



The following codes and standards were used as a reference:

API Specification 6A, *Specification for Wellhead and Christmas Tree Equipment*, 20th Edition.

Product description

Drawing No.	Description
K4127002AA	2 Male Union Plug 2x103.5MPa
K01201166001AA	200mm Male Adapter assembly
K0166008AA	200mm Crossover
K01201166017AA	220mm Male Adapter Assembly
K0166099AA	220mm Male Adapter
K01201177001AA	200mm Female Adapter Assembly
K0177002AA	200mm Crossover
K4127007AA	2 Female Union Plug
K01201156004AA	200mm Adapter Assembly
K0156009AA	200mm Adapter
K01201156084AA	315mm Adapter Assembly
K0156249AA	315mm Adapter
K01201156045AA	260mm Adapter assembly
K0156170AA	260mm crossover
K01201156026AA	367mm Adapter assembly
K0156089AA	367mm crossover
K43201156004AA	2 Tee FMF
K4223072AA	2 Tee
K62301130006AA	1500mm Integral Straight Pipe Assembly
K6333023AA	1500mm Integral Straight Pipe
K62201110008AA	500mm Integral Straight Pipe Assembly
K6213043AA	500mm Integral Straight Pipe
K62201120041AA	560mm Integral Straight Pipe Assembly
K0122048AA	560mm Integral Straight Pipe
K62201120047AA	610mm Integral Straight Pipe Assembly
K6223081AA	610mm Integral Straight Pipe
K62201120045AA	850mm Integral straight pipe assembly FM
K6223077AA	850mm Integral straight pipe
K62201120037AA	1000mm Integral Straight Pipe Assembly
K6223069AA	1000mm Integral Straight Pipe
K62201130035AA	1500mm Integral Straight Pipe Assembly
K6233046AA	1500mm Integral Straight Pipe
K62201140022AA	2000mm Integral Straight Pipe Assembly
K6243037AA	2000mm Integral Straight Pipe
K62201160007AA	3000mm Integral Straight Pipe Assembly
K6263014AA	3000mm Integral Straight Pipe
K51301110002AA	10 type swivel Joint Assembly
K5002006AA	AB Bending joint
K5001005AA	AD straight joint
K5006006AA	BC straight joint
K5002003AA	AB Bending joint
K5003006AA	AD straight joint
K5006001AA	BC straight joint
K51201150001AA	50 Type Swivel Joint Assembly
K31101100011AA	1 Hydraulic Plug Valve Assembly
K3101074AA	Valve Body
K3102032AA	Plug
K3105029AA	Valve Body Cover, Hyd. Plug Valve, 1" –105 Mpa
K31201100005AA	2 Hydraulic Plug Valve Assembly
K3101039AA	Valve Body
K3102020AA	PLUG, HYD. PLUG VALVE, 2" – 105 MPa
K3105016AA	VALVE BODY COVER, HYD. PLUG VALVE, 2" – 105 MPa

K31101100008AA	HYDRAULIC PLUG VALVE ASSEMBLY, 1" – 105 MPa
K31201100007AA	HYDRAULIC PLUG VALVE ASSEMBLY, 2" – 105 MPa
K42201156001AA	L TYPE JOINT, INTEGRAL JOINT, 2" – 105 MPa
K43201156001AA	TEE ASSEMBLY, 2" FIG. 1502, 105 MPa
K43201156003AA	TEE, INTEGRAL JOINT, 2" FIG. 1502, 105 MPa
K45201156001AA	Y-TEE, 2" FIG 1502, 105 MPa
K34201100001AA	EMERGENCY SHUT OFF VALVE, 2" FIG. 1502, 105 MPa
K31201100001AA	PLUG VALVE ASSEMBLY, 2" FIG. 1502, 105 MPa
K62201130038AA	INTEGRAL STRAIGHT PIPE ASSEMBLY, L=1460mm
K4121004AA	WING NUT UNION ASSEMBLY, 2" – 105 MPa
K3101074AA	VALVE BODY, PLUG VALVE, 1" 105 MPa
K3102032AA	PLUG, PLUG VALVE, 1" – 105 MPa
K4222001AA	L TYPE JOINT, 2" – 105 MPa
K4223001AA	TEE, 2" – 105 MPa
K4223067AA	2" TEE INTEGRAL JOINT
K4225001AA	Y-TEE, INTEGRAL JOINT, 2" – 105 MPa
K3401001AA	VALVE BODY, EMERGENCY UNLOAD VALVE, 2" – 105 MPa
K3101003AA	VALVE BODY, PLUG VALVE, 2" – 105 MPa
K3102003AA	PLUG, PLUG VALVE, 2" – 105 MPa
K6233048AA	CD STRAIGHT PIPE, L=1460mm, 2" FIG 1502, 105 MPa
K62201130023AA	INTEGRAL STRAIGHT PIPE ASSY., L=1460mm, 2" FIG 1502, 105 MPa
K3105003AA	VALVE BODY COVER, PLUG VALVE ASSY, 2" – 105 MPa
K3107001AA	SEAL ARC, PLUG VALVE ASSY, 1" – 105 MPa
K3107002AA	SEAL ARC, PLUG VALVE ASSY, 2" – 105 MPa
K3113002AA	RETAINING RING, PLUG VALVE ASSY, 2" – 105 MPa
K3125004AA	COUPLING, HYDRAULIC PLUG VALVE, 1" – 105 MPa
K0156001AA	2"×105MPa Crossover adapter L=200
K62201130004AA	INTEGRAL STRAIGHT PIP ASSEMBLY FM L=1.2M
K6233029AA	STRAIGHT PIPE
K62201120010AA	INTEGRAL STRAIGHT PIPE
K6223021AA	STRAIGHT PIPE
K43201155005AA	TEE
K4223014AA	TEE
K42201166001AA	L JOINT
K4122045AA	L JOINT
K01201165006AA	ADAPTER ASSEMBLY L=300MM
K0165035AA	CROSSOVER ADAPTER L=300MM
K62201120001AA	INTEGRAL STRAIGHT PIPE
K01201156001AA	2"FIG1502 M~2"FIG1502 F Adapter assembly L=200mm
K31101100001AA	1"×105MPa~2"FIG1502 Plug valve FM
K01201156049AA	2"FIG1502 M~2"FIG1502 F Adapter assembly L=360mm
K51201180001AA	2"×105MPa~FIG1502 80 type swivel joint FM
K01201166002AA	3"FIG1502 M~2"FIG1502 M Adapter assembly L=200mm
K62201110002AA	2"×105MPa~FIG1502 Integral straight pipe FM L=0.5m
K3102002AA	1"×105MPa Plug
K3101002AA	1"×105MPa Valve body
K0156180AA	2"×105MPa Crossover adapter L=360
K0166011AA	3"×2" Crossover adapter
K6213012AA	2"×105MPa straight pipe L=0.5m
K6223002AA	2"×105MPa straight pipe L=1m
K42201156002AA	2" x 103.5 MPa, Fig. 1502 Long radius Elbow
K4221001AA	2" x 15000 psi Long radius Elbow
K43201165001AA	2" x 15000 psi Fig. 1502 Tee MFM
K4223004AA	2" x 103.5 MPa Tee Joint

Job Id: **262.1-030750-1**
Certificate No: **TAD000015E**

Application/Limitation

Design Parameter	Value	Equivalent
Maximum Allowable Working Pressure	15000 psi	103.5 MPa
Hydrostatic Test Pressure	22500 psi	155.25 MPa
Minimum Allowable Working Pressure	-4F	-20C
Design Temperature	122F	50C
PSL	3	
PR	1	
Material Grade	AA	

Type Approval documentation

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K5002003AA	--	AB Bending joint
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K51201150001AA	A	50 Type Swivel Joint Assembly
K31101100011AA	A	1 Hydraulic Plug Valve Assembly

K3101074AA	A	Valve Body
K3102032AA	B	Plug
K3105029AA	--	Valve Body Cover, Hyd. Plug Valve, 1" -105 Mpa
K31201100005AA	A	2 Hydraulic Plug Valve Assembly
K3101039AA	A	Valve Body
K3102020AA	B	PLUG, HYD. PLUG VALVE, 2" - 105 MPa
K3105016AA	B	VALVE BODY COVER, HYD. PLUG VALVE, 2" - 105 MPa
K31101100008AA	--	HYDRAULIC PLUG VALVE ASSEMBLY, 1" - 105 MPa
K31201100007AA	--	HYDRAULIC PLUG VALVE ASSEMBLY, 2" - 105 MPa
K42201156001AA	--	L TYPE JOINT, INTEGRAL JOINT, 2" - 105 MPa
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K43201156003AA	--	TEE, INTEGRAL JOINT, 2" FIG. 1502, 105 MPa
K45201156001AA	--	Y-TEE, 2" FIG 1502, 105 MPa
K34201100001AA	1	EMERGENCY SHUT OFF VALVE, 2" FIG. 1502, 105 MPa
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K4221001AA	--	2" x 15000 psi Long radius Elbow
K43201165001AA	--	2" x 15000 psi Fig. 1502 Tee MFM
K4223004AA	--	2" x 103.5 MPa Tee Joint

-	01	Design Calculation of 2-105MPa Swivel Joint
-	01	Design Calculation of 2-105MPa Rigid Straight Pipe

Tests carried out

Tests carried out include the non-metallic test on Sample No. 2015-P030-001-021, dated 2015-08-10. Components to be hydrostatically tested prior to certification.

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Marking of product

For traceability, the following marking is to be carried out on all products:

1. Serial Number
2. Manufacturer's Name or Trademark
3. Additional Marking at the manufacturer's discretion

Periodical assessment

For retention of the Type Approval Certificate, DNV GL's surveyor shall perform a survey after two and three-and-a-half years per DNV GL's Class Program, DNVGL-CP-0338.

Other Comments and Conditions

1. These parts are not approved for Choke and Kill or Well Test systems. These parts are not approved for Sour Service applications.
2. DNVGL Reference Project: A0727347

END OF CERTIFICATE