



نگهداشت و افزایش تولید میدان نفتی بینک
سطح الارض و ابنیه تحت الارض
خرید پکیج پمپ های آب آتشنشانی ایستگاه تقویت فشار گاز بینک
(قرارداد ۰۰۲۳-۰۰-۰۰۰۰-BK-HD-GCS-CO)



شماره پیمان: ۰۵۳-۰۰۲۳-۹۱۸۴	DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP							شماره صفحه: ۱ از ۱۰
	نسخه	سریال	نوع مدرک	رشته	تهیه کننده	بسته کاری	پروژه	
	V00	0002	DS	ME	120	KP	GCS	

طرح نگهداشت و افزایش تولید ۲۷ مخزن

DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP
نگهداشت و افزایش تولید میدان نفتی بینک

V00	Nov-2024	IFA	KP	M.Fakharian	M.Sadeghian	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

status:

IFA: Issued For Approval
IFI: Issued For Information
AFC: Approved For Construction



نگهداشت و افزایش تولید میدان نفتی بینک
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خرید پکیج پمپ های آب آتشنشانی ایستگاه تقویت فشار گاز بینک
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شماره پیمان:

DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP

شماره صفحه: ۲ از ۱۰

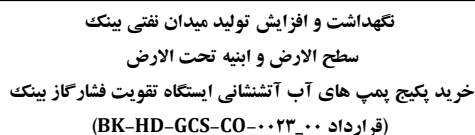
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نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
V00	0002	DS	ME	120	KP	GCS	BK

REVISION RECORD SHEET

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شماره پیمان: ۰۵۳-۰۷۲-۹۱۸۴	DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP							شماره صفحه: ۳ از ۱۰	
	نسخه	سریال	نوع مدارک	رشته	تهیهات	صادر کننده	بسته کاری		پروژه
	V00	0002	DS	ME	120	KP	GCS		BK

KPC : Confirmed

KPC: Please refer to O&M



DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP

شماره صفحه: ۴ از ۱۰

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V00	0002	DS	ME	120	KP	GCS	BK

CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (Sheet 1 of 6)

PURCH ORDER NO.

identify a cross referenced paragraph in the document note, and may also contain a drop down list

COMMENTS:

DATA SHEETS					
ITEM No.		ATT	ITEM No.		ATT
PUMP MOTOR GEAR TURBINE	P-2301 A	YES			

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و آبنیه تحت الارض خرید پکیج پمپ های آب آتشنشانی ایستگاه تقویت فشار گاز بینک (قرارداد ۰۰۲۳-۰۰۰۰-BK-HD-GCS-CO)	 Kalaye Pump Co.																																																																																																																																										
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DIFFERENTIAL HEAD :	m		105.0																																																																																																																																									
NPSH _a :	m		8.8																																																																																																																																									
HYDRAULIC POWER: (Note 23)	KW		129.50																																																																																																																																									
LOCATION: _____ MOUNTED AT : OUTDOOR ELECTRIC AREA CLASSIFICATION: _____ GROUP: _____ SITE DATA : ELEVATION (MSL) : 12.5 m RANGE OF DESIGN TEMPS: MIN / MAX 5 / 85 °C RELATIVE HUMIDITY: MIN / MAX 0 / 100 % (@ 25.6 °C) UNUSUAL CONDITIONS: NA UTILITY CONDITIONS : ELECTRICITY : DRIVERS HEATING CONTROL SHUTDOWN VOLTAGE 3300 PHASE 3 HERTZ 50	COOLING WATER : TEMP _____ PRESS. _____ SOURCE _____ COOLING WATER CHLORIDE CONCENTRATION: _____ INSTRUMENT AIR : _____ kg STEAM _____ TEMP _____ PRESS. _____																																																																																																																																											
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Hirgan shall specified site condition
KPC: Noted

In according to Note 21, Flow shall be considered at least 150% of Rated flow, so calculated Nameplate power is not sufficient .
KPC: Motor power is sufficient as per attached calculation sheet. (Derating factors such as temperature, elevation will be considered by motor manufacturer.)

motor manufacturer shall be specified
KPC: OME

KPC: OME

Ns and Nss limitation shall be specified @ QBep & max impeller
KPC: Confirmed
NSS(m³/h,m,rpm)=8498
NS (rpm, m³/h,m)=867

Recheck Nss or clarify how did you reach to it?
KPC: NSS & NS Calculation based on QBep of max impeller diameter
Q(m³/h): 560/2=280
H(m): 120
NPSHr(m): 4.2
Speed(rpm): 1490

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج پمپ های آب آتشنشانی ایستگاه تقویت فشار گاز بینک (قرارداد ۰۰۲۳-۰۰-BK-HD-GCS-CO)	 HIRGAN ENERGY  Kalaye Pump Co.
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP	شماره صفحه: ۶ از ۱۰
پروژه BK	بسته کاری GCS	صادر کننده KP
تهیلات 120	رشته ME	نوع مدرک DS
سریال 0002	نسخه V00	

by considering of material is it correct to use RF?
KPC:Confirmed

[Based on API 610]					
Size	Facing	Rate	Notes	Size	Rate
6"	RF	150	NOTES 7.12	150	SIDE

DISCHARGE
PRESSURE CASING AUX. CONNECTIONS: (6.4.3.2)

No.	Size	Type	Facing	Rate	Notes
1	1/2"	SWF	RF	150	SIDE
1	1/2"	SWF	RF	150	SIDE

DRAIN
VENT
PRESSURE GAGE
TEMP GAGE
WARM-UP LINE

Drain Valve Supplied By
DRAINS MANIFOLDED
VENT Valve Supplied By
VENTS MANIFOLDED
THREAD. CONS FOR PIPELINE SERVICE & < 50°C (6.4.3.2)
SPECIAL FITTINGS FOR TRANSITIONING (6.4.3.3)
CYLINDRICAL THREADS REQUIRED (6.4.3.8)
GUSSET SUPPORT REQUIRED
MACHINED AND STUDDED CONNECTIONS (6.4.3.12)
VS 6 DRAIN
DRAIN TO SKID EDGE

SUPPLIER
Coupling Manufacturer & model shall be specified
KPC:Noted

Gr. 60-40-15 is not correct.it shall be corrected.
KPC:GGG40(A536 60-40-18)

GGG40(A536 60-40-15)

C95200
case wear ring to be specified
KPC:Bronze(C95200)

BEARINGS AND LUBRICATION (6.10.1.1)

BEARING (TYPE / NUMBER): (6.11.4)

RADIAL	ROLLER	/	1
THRUST	BALL	/	1

REVIEW AND APPROVE THRUST BEARING SIZE : (9.2.5.2.4)

LUBRICATION : (6.10.2.2) (6.11.3) (9.2.6)

PRESSURE LUBE SYSTEM TO ISO 10438- (9.2.6.5)

ISO 10438 DATA SHEETS ATTACHED

Pressurized Lube Oil System mtd on pump baseplate

Location of Pressurized Lube Oil System mounted on baseplate :

INTERCONNECTING PIPING PROVIDED BY Supplier

OIL VISC. ISO GRADE VG

CONSTANT LEVEL OILER :

SI UNIT) - P-2301 A (Sheet 3 of 6)

TO BE SPECIFIED

FOOT SINGLE VOLUTE

CASING MOUNTING:
CASING TYPE:
OH3 BACKPULLOUT LIFTING DEVICE REQ'D. (9.1.2.6)

CASE PRESSURE RATING:
MAWP : (6.3.5) 15 By vendor barg @ KPC:AMB
HYDROTEST : (6.3.5) 1.5*MAWP barg @ KPC:AMB

HYDROTEST OH PUMP AS ASSEMBLY YES
SUCTION PRESS. REGIONS DESIGNED FOR MAWP YES

ROTATION: (VIEWED FROM COUPLING END) KPC:CW
KPC:Yes

- IMPELLERS INDIVIDUALLY SECURED :
- BOLT OH 3/4/5 PUMP TO PAD / FOUNDATION :
- PROVIDE SOLEPLATE FOR OH 3/4/5 PUMPS

ROTOR:
SHAFT FLEXIBILITY INDEX (SFI) (9.1.1.3)
First Critical Speed Wet (Multi stage pumps only)
COMPONENT BALANCE TO ISO 1940 G1.0 NO
SHRINK FIT -LIMITED MOVEMENT IMPELLERS (9.2.2.3)
COUPLING:(7.2.3) (7.2.13.0) NOTE 17
MANUFACTURER KPC:Colossus
MODEL FLEXIBLE SPACER TYPE
RATING (POWER/100 RPM) KPC:180 mm
SPACER LENGTH Min 1.5
SERVICE FACTOR NO
RIGID YES
COUPLING WITH HYDRAULIC FIT (7.2.10)
COUPLING BALANCED TO ISO 1940-1 G6.3 (7.2.3)
COUPLING WITH PROPRIETARY CLAMPING DEVICE (7.2.11)
COUPLING IN COMPLIANCE WITH (7.2.4) API 610 compliant
COUPLING GUARD STANDARD PER (7.2.13.a) ISO 14120
Window on Coupling Guard KPC:Coupling Guard

BASEPLATE

API BASEPLATE NUMBER :
BASEPLATE CONSTRUCTION (7.3.14) KPC:PARTIAL TOP DECKING
BASEPLATE DRAINAGE (7.3.1) Entire Baseplate Drain Pan
MOUNTING :
NON-GROUT CONSTRUCTION : (7.3.13)
VERTICAL LEVELING SCREWS : REQUIRED
LONGITUDINAL DRIVER POSITIONING SCREWS : REQUIRED
SUPPLIED WITH :

- GROUT AND VENT HOLES YES
- DRAIN CONNECTION YES

MOUNTING PADS SIZED FOR BASEPLATE LEVELING (7.3.5) YES
MOUNTING PADS TO BE MACHINED (7.3.6) YES
PROVIDE SPACER PLATE UNDER ALL EQUIPMENT FEET YES

OTHER
to be specified
KPC:Noted

REMARKS

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج پمپ های آب آتشنشانی ایستگاه تقویت فشار گاز بینک (قرارداد ۰۰۲۳-۰۰ BK-HD-GCS-CO)	 Kalaye Pump Co.																								
شماره پیمان: ۰۵۳-۰۷۳-۹۱۸۴	<table><tr><th colspan="8">DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تهیهات</th><th>صادر کننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>V00</td><td>0002</td><td>DS</td><td>ME</td><td>120</td><td>KP</td><td>GCS</td><td>BK</td></tr></table>	DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP								نسخه	سریال	نوع مدرک	رشته	تهیهات	صادر کننده	بسته کاری	پروژه	V00	0002	DS	ME	120	KP	GCS	BK	شماره صفحه: ۷ از ۱۰
DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP																										
نسخه	سریال	نوع مدرک	رشته	تهیهات	صادر کننده	بسته کاری	پروژه																			
V00	0002	DS	ME	120	KP	GCS	BK																			
CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (Sheet 4 of 6)																										
INSTRUMENTATION				SEAL SUPPORT SYSTEM MOUNTING																						
SEE ATTACHED API-670 DATA SHEET ACCELEROMETER (7.4.2.1) Number of Accelerometers Mounting Location of Accelerometers PROVISION FOR MTG ONLY (6.10.2.10) YES Number of Accelerometers Mounting Location of Accelerometers FLAT SURFACE REQUIRED (6.10.2.11) N / A Number of Accelerometers Mounting Location of Accelerometers VIBRATION PROBES (7.4.2.2) N / A PROVISIONS FOR VIB. PROBES NUMBER PER RADIAL BEARING NUMBER PER AXIAL BEARING MONITORS AND CABLES SUPPLIED BY (7.4.2.4) TEMPERATURE (7.4.2.3) PROVISIONS FOR TEMP PROBES RADIAL BEARING TEMP. NUMBER PER RADIAL BEARING THRUST BEARING TEMP. NUMBER PER THRUST BEARING ACTIVE SIDE NUMBER PER THRUST BEARING INACTIVE SIDE TEMP. GAUGES (WITH THERMOWELLS) (9.1.3.6) PRESSURE GAUGE TYPE Remarks				SEAL SUPPORT SYSTEM MOUNTED ON PUMP BASEPLATE (7.5.1.4) IDENTIFY LOCATION ON BASEPLATE INTERCONNECTING PIPING BY Supplier MECHANICAL SEAL (6.8.1) SEE ATTACHED ISO 21049/API 682 DATA SHEET N / A NOTE 5 ADDITIONAL CENTRAL FLUSH PORT (6.8.9) HEATING JACKET REQ'D. (6.8.11) N / A FLUSH PLAN HEATING AND COOLING (6.1.17) COOLING REQ'D NO COOLING WATER PIPING PLAN COOLING WATER PIPING FITTINGS COOLING WATER PIPING MATERIALS COOLING WATER REQUIREMENTS: TOTAL COOLING WATER HEATING MEDIUM OTHER HEATING PIPING PIPING & APPURTENANCES MANIFOLD PIPING FOR PURCHASER CONNECTION (7.5.1.6) VENT YES DRAIN YES VALVES YES (NOTE 8) COOLING WATER NO TAG ALL ORIFICES (7.5.2.4) YES SOCKET WELD CONN ON SEAL GLAND (7.5.2.8)																						

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج پمپ های آب آشنشانی ایستگاه تقویت فشار گاز بینک (قرارداد ۰۰۲۳-۰۰۰۱۸۴-۰۵۳)							
شماره پیمان: ۰۵۳-۰۰۲۳-۹۱۸۴	DATA SHEETS (W/PERFORMANCE CURVE) FOR FIRE WATER MAIN ELECTRICAL PUMP							شماره صفحه: ۱۰ از ۸
	پروژه	بسته کاری	صادر کننده	تهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	KP	120	ME	DS	0002	V00

CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (Sheet 5 of 6)

SURFACE PREPARATION AND PAINT						TEST	
MANUFACTURER'S STANDARD						SHOP INSPECTION (8.1.1)	
OTHER (SEE BELOW)						PERFORMANCE CURVE	
SPECIFICATION NO. BK-GNRL-PEDCO-000-P1-SP-0006, "Specification for Painting"						& DATA APPROVAL	
PUMP:						TEST WITH SUBST	
PUMP SURFACE PREPARATION						MATERIAL CERTI	
PRIMER						SHAFT	
FINISH COAT						OTHER	
BASEPLATE:						CASTING REPAIR WELD PROCEDURE APPR REQD	
BASEPLATE SURFACE PREPARATION						INSPECTION REQUIRED FOR CONNECTION WELDS (6.12.3.4.d) KPC:NOT APPLICABLE	
PRIMER:						LIQUID PENETRANT	
FINISH COAT						ULTRASONIC	
DETAILS OF LIFTING DEVICES						INSPECTION REQUIRED FOR CASTINGS	
SHIPMENT: (8.4.1) EXPORT						LIQUID PENETRANT	
EXPORT BOXING REQUIRED						ULTRASONIC	
OUTDOOR STORAGE MORE THAN 6 MONTHS						HARDNESS TEST REQUIRED (8.2.2.7)	
SPARE ROTOR ASSEMBLY PACKAGED FOR:						ADDNL SUBSURFACE EXAMINATION (6.12.1.5) (8.2.1.3)	
ROTOR STORAGE ORIENTATION (9.2.8.2)						FOR	
SHIPPING & STORAGE CONTAINER FOR VERT STORAGE (9.2.8.3)						METHOD	
N ₂ PURGE (9.2.8.4)						PMI TESTING REQUIRED (8.2.2.8)	
SPARE PARTS						COMPONENTS TO BE TESTED	
START-UP						RESIDUAL UNBALANCE TEST (J.4.1.2)	
NORMAL MAINTENANCE						NOTIFICATION OF SUCCESSFUL SHOP	
ITEM No						PERFORMANCE TEST (8.1.1.c) (8.3.3.5)	
PUMP						BASEPLATE TEST (7.3.21)	
DRIVER						HYDROSTATIC	
GEAR						HYDROSTATIC TEST OF BOWLS & COLUMN (9.3.13.2)	
BASE						PERFORMANCE TEST	
TOTAL						TEST IN COMPLIANCE WITH (8.3.3.2)	
						TEST DATA POINTS TO (8.3.3.3)	
						TEST TOLERANCES TO (8.3.3.4)	
						NPSH (8.3.4.3.1) (8.3.4.3.4)	
						NPSH-1ST STG ONLY (8.3.4.3.2)	
						NPSH TESTING TO HI 1.6 OR ISO 9906 (8.3.4.3.3)	
						TEST NPSHA LIMITED TO 110% SITE NPSHA (8.3.3.6)	
						RETEST ON SEAL LEAKAGE (8.3.3.2.d)	
						RETEST REQUIRED AFTER FINAL HEAD ADJ (8.3.3.7.b)	
						COMPLETE UNIT TEST (8.3.4.4.1)	
						SOUND LEVEL TEST (8.3.4.5)	
						CLEANLINESS PRIOR TO FINAL ASSEMBLY (8.2.2.6)	
						LOCATION OF CLEANLINESS INSPECTION	
						NOZZLE LOAD TEST	
						CHECK FOR CO-PLANAR MOUNTING PAD SURFACES	
						MECHANICAL RUN TEST UNTIL OIL TEMP STABLE	
						4 HR. MECH RUN AFTER OIL TEMP STABLE (8.3.4.2.1)	
						4 HR. MECH RUN TEST (8.3.4.2.2)	
						BRG HSG RESONANCE TEST (8.3.4.7)	
						STRUCTURAL RESONANCE TEST (9.3.9.2)	
						REMOVE / INSPECT HYDRODYNAMIC BEARINGS AFTER TEST	
						(9.2.7.5)	
						AUXILIARY EQUIPMENT TEST (8.3.4.6)	
						EQUIPMENT TO BE INCLUDED IN AUXILIARY TESTS	
						LOCATION OF AUXILIARY EQUIPMENT TEST	
						IMPACT TEST	
						PER EN 13445	
						PER ASME SECTION VIII	
						REMOVE CASING AFTER TEST	

This section shall be as per Approved ITP

KPC:Noted and confirmed

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض و ابنیه تحت الارض خرید پکیج پمپ های آب آتشنشانی ایستگاه تقویت فشار گاز بینک (قرارداد ۰۰۲۳-۰۰-BK-HD-GCS-CO)							 شرکت توسعه و پیمانکاری  Kalaye Pump Co.																								
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	BK	GCS	KP	120	ME	DS	0002	V00																								
CENTRIFUGAL PUMP DATA SHEET (SI UNIT) - P-2301 A (Sheet 6 of 6)																																
PRESSURE VESSEL DESIGN CODE REFERENCES																																
THESE REFERENCES MUST BE LISTED BY THE MANUFACTURER																																
CASTING FACTORS USED IN DESIGN (TABLE 3)																																
SOURCE OF MATERIAL PROPERTIES																																
WELDING AND REPAIRS (NOTE 13)																																
THESE REFERENCES MUST BE LISTED BY THE PURCHASER. (DEFAULT TO TABLE 11 IF NO PURCHASER PREFERENCE IS STATED)																																
ALTERNATE WELDING CODES AND STANDARDS																																
WELDING REQUIREMENT (APPLICABLE CODE OR STANDARD)																																
WELDER/OPERATOR QUALIFICATION																																
WELDING PROCEDURE QUALIFICATION																																
NON-PRESSURE RETAINING STRUCTURAL WELDING SUCH AS BASEPLATES OR SUPPORTS																																
MAGNETIC PARTICLE OR LIQUID PENETRANT EXAMINATION OF PLATE EDGES																																
POSTWELD HEAT TREATMENT																																
POSTWELD HEAT TREATMENT OF CASING FABRICATION WELDS																																
MATERIAL INSPECTION																																
THESE REFERENCES MUST BE LISTED BY THE PURCHASER																																
ALTERNATIVE MATERIAL INSPECTIONS AND ACCEPTANCE CRITERIA (SEE TABLE 15) (8.2.2.5)																																
DEFAULT TO TABLE 14																																
YES																																
<table><thead><tr><th>TYPE OF INSPECTION</th><th>METHOD</th><th>FOR FABRICATIONS</th><th>FOR CASTINGS</th></tr></thead><tbody><tr><td>RADIOGRAPHY</td><td></td><td></td><td></td></tr><tr><td>ULTRASONIC INSPECTION</td><td></td><td></td><td></td></tr><tr><td>MAGNETIC PARTICLE INSPECTION</td><td></td><td></td><td></td></tr><tr><td>LIQUID PENETRANT INSPECTION</td><td></td><td></td><td></td></tr><tr><td>VISUAL INSPECTION (all surfaces)</td><td></td><td></td><td></td></tr></tbody></table>									TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS	RADIOGRAPHY				ULTRASONIC INSPECTION				MAGNETIC PARTICLE INSPECTION				LIQUID PENETRANT INSPECTION				VISUAL INSPECTION (all surfaces)			
TYPE OF INSPECTION	METHOD	FOR FABRICATIONS	FOR CASTINGS																													
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VISUAL INSPECTION (all surfaces)																																
REMARKS :																																

1- Min/Max continues stable flow shall be shown on curve.
KPC:Min continues stable flow is 15 m3/h
Max continues stable flow is 681.3 m3/h

2-Efficiency curve shall be added
KPC:It is not possible

CO.



Item No.	P-2301 B	Pump Model	KSPF 150-570	Flow,Rated (m ³ /h)	454.2
Liquid	Water	Speed (rpm)	1490	Head (m)	105
Temp. (°c)	-3.5 / 53	Rated Imp.Dia. (mm)	530	Efficiency (%)	72
Density(kg/m ³)	997	Suction Size (Inch)	8	NPSHR (m)	3.5
Viscosity (cp)	1	Disch. Size (Inch)	6	Rated Power (kw)	180.5
NPSHA (m)	8.8	NSS (m ³ /h,m,rpm)	8498	Motor Power (kw)	250

