م/ طلبية شراء عدادات جريان النفط والغاز

أولاً: نطاق العمل أدناه نطاق الاعمال المطلوبة لتنفيذ الطلبية أنفة الذكر وفق جدول الكميات والمواصفات الفنية المطلوبة وبمرحلة واحدة

ثانياً: الوصف العام طلبية شراء عدادات جريان النفط والغاز، وحسب المواصفتين القياسيتين (API MPMS, AGA)

ثالثاً: الأجهزة والمعدات كما مبين في الجدول أدناه:

SECTION 1: DRY GAS FLOWMETER

i. General

Service	Dry gas flow measurement	
Quantity	1	
Meter Type, Orientation	Inline Ultrasonic , Horizontal	
Measuring Method	Ultrasonic, transit time difference	
Error	1 % of flow rate or better (See note:3)	
No. of Paths	2 (at least)	
Meter Size [inch]	6	
Tube Material	Stainless Steel or Carbon Steel	
Compliance	AGA-9	

ii. Process Data

Process Fluid	Dry gas (See note:5)			
Operating Flow Rate [MMSCF/D]:	Min	3	Max	75
Operating Temperature [°C]	Min	-5	Max	65
Operating Pressure [Kg/cm²(g)]	Min	10.3	Max	103

iii. Flow Transmitter

Display	LCD
Measured and displayed values	Line#1: Volume Flow Rate Line#2: Totalising Volume
Language of Display	English
Mounting Version	Compact
Output Signal	4-20mA HART + Impuls
Supply Voltage	24 DC V
Registration Unit	MMSCF
Material Body/Housing	Stainless Steel or Aluminum
Ingress Protection, Ex. Proof	IP 65, Ex"d"

iv. Other

Integrated pressure transmitter	Required
Integrated temperature transmitter	Required

v. Notes:

- 1) Price Includes;
- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
- Country of origin certificate ratified by Trade Bureau and Iraqi embassy therein, and accredited calibration certificate, are required for the flowmeter above.
- (20) m armored power cable.
- 2) Environmental Data
 - Ambient Temperature [°C]: ≤55 (Under Sunshade) ≤80 (Direct Sun Light)
 Barometric Pressure [Kg/cm²(g)]: 1.01325

- 11 - 17

- Relative Humidity (%): 5 ... 95
- 3) For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025-2017 apply.
- 4) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland
- 5) Gas Compositions

Test	%	القحص ال
Methane (Ci) Vol % (min)	7.5	میثان %حجم (الادنی)
Ethane (C1) Vol %	20	ابنان % حجم (الانصر)
Propane (C3) Vol %(max)	0.5	بروبان%حجم (الأئمس)
Butanes Vol % (max)	0.25	بيونان % هجم (الالمسر)
Pentancs and Heavier Vol % (max)	0.25	ينتن وائتل % دجم (الاتصر)
Nitrogen (N;) Vol%(max)	1.2	شرر در والاقصى)
Carbon Dioxide (Co.) Vol %(max)	2.5	لثاني الصب الكاربون % ميم (الاقصر)
H ₂ S + COS mg/m ³ (max)	1	كبريئيد الهيدروجين + كبريئيد الكتربوتيل (ملتوام/مترمكب) (الاقصم)
***H ₁ S ppmv (max)	4.0	كبرينيد الهيدروجين (جزء بالملبون حجماً) (الأقصى)
Mercaptan (RSH) mg/m3 (max)	1.5	مركبتان (ملغرام/مترمكت) (الاقصى)
Total Sulfur mg/m1 (max)	40	محتوى الكبريت (ملفرام/بنرمكعب) (الاقصى)
·· Water Dew point Co @70 bar (max)	-	* "درجة الذي للماء (عند · ٧ بار) م ٥ (الاتفصى)
Water Dew point Co @40 bar. (max)	-40	درجة الندى للماء (عند ١٠ بار) م° (الاقتصر)
vdrocarbon Dew point (HC) (@ 70 bar, (max)	****	درجة الله المهيئروكاريونات (عد · ٧بار) م° (الافتعس)
edrucarbon Dew point (HC) C° @ 40 bяг, (max)	-36	يرجةً الندى للهيدروكاريونات (عند - ايلر) م° (الاقصر)
'Mercury (Hg) ng/m	10	• نسمة الزنبق ناثو غرام/ مترمكعب
Oxygen (O1) Vol% (max)	0.1	الاوكسجين (عيماً) (الاقصى)
- Irran - Ara	1	

SECTION 2: CLAMP-ON FLOWMETER

i	General
١.	General

Measuring Principle	Ultrasonic, transit time difference	
Quantity	1	
Flow Transmitter Type	Portable, battery-powered	
Flow sensors Type	Clamp-on	
Compliance	API MPMS CH5, SEC8	
Display	LCD	
Language of Display	English	
Units	Metric, British and US	
Power Supply	Internal rechargeable battery	
Battery Charger	230 VAC, 50 Hz	

ii. Process Design

Process Fluid	Crude Oil		
Operating Flow Rate [m³/h]	Min: 10	Max: 720	
Operating Temperature [C]	Crude Oil: 4 65	Water: 4 80	
Operating Pressure [Kg/cm²(g)]	1 20		
Viscosity [cSt]	< 100		

iii. Piping Details

Pipe Material	Metal	
Pipe Size [inch]	2 16	
Wall thickness[mm]	< 50	
Flow Orientation	Horizontal	

iv. Environment Details

Barometric Pressure [Kg/cm²(g)]	1.0325
Ambient Temperature Min[°C]	0 65

v. Measuring Accuracy

Reference conditions	Medium: Water; Medium Temp 20 °C	
Maximum measuring error	±1% of the measured value for (DN≥50mm and V > 0.5 m/s) ±3% of the measured value for (DN<50mm and V > 0.5 m/s)	
Repeatability	≤±0.2%	

vi. Additional Requirements and Details

vi. Additional Requirements	and Details
Certificate & Documents	- Country of origin certificate ratified by Trade Bureau and Iraqi embassy therein
	- Accredited factory calibration certificate
Country of Origin	USA, Japan, UK, Netherlands, Germany, France, Switzerland
Warranty	365 Days, starting from the date of delivery to the end user and technical compliance
Hard Carrying Case	Required

SECTION 3: 3RD STAGE SEPARATOR FLOWMETER (TRAIN A)

 $P \rightarrow P$

No			Item			
1	i. General		10000/0000			
	Meter Type, Orientation	Inline U	Iltrasonic , Horizontal			
	Quantity	1 Ultrasonic, transit time difference				
	Measuring Method					
	Error		flow rate or better (see note:2)	,		
	Compliance		MS CH5 SEC8	•		
	No. of Paths		to Advise			
	Line Size [inch]	8				
	Meter Size [inch]	8				
	Tube Material	Stainles	ss Steel or Carbon Steel			
	ii. Process Data					
	Process Fluid	Crude (Dil			
	Operating Flow Rate [m³/h]:	Min	5	Max	50	
	Design Temperature [°C]	Min	5	Max	85	
	Operating Pressure	Min	2			
	[Kg/cm ² (g)]	IVIII	2	Max	10	
	Design Pressure [Kg/cm²(g)]			Max	15	
	Viscosity @ 26.7 °C [cst]	Min	15	Max	160	
	Density @ 15 °C [Kg/m³]	Min	800	Max	1000	
	Salt [ppm]	≤ 500				
	H₂S [ppm]	≤ 10				
	Water Content [%]	≤ 3				
	iii. Flow Transmitter					
	Display	LCD				
	Language of Display	English				
	Mounting Version	Compa				
	Output Signal		ncy/Pulse,& 4-20 mA HART			
	Supply Voltage	24 DC \	/			
	Measured and displayed values	Volume	Flow Rate, Totalising Volume			
	Material Body/Housing	Stainles				
	Ingress Protection & Ex.	Stainless Steel or Aluminum				
	Proof	IP 65, Ex "d"				
2	Pressure Transmitter Quantity	4				
	Accuracy	1 + 1 % of	span (or Better)			
	Design Pressure [Kg/cm²(g)]	16	Spair (or Better)			
	Display	LCD				
	Unit Ingress Protection & Ex.	Bar	0.40			
	Proof	IP 65, E: 24 DC V				
	Supply Voltage	Require				
	Three Way Valve					
3	Temperature Transmitter					
	Quantity	1	/ B :: \			
	Accuracy Design Temperature	± 1 % of 85	span (or Better)			
	Ingress Protection & Ex.	IP 65, E:	x "d"			
	Proof Supply Valtage	24 DC V				
	Supply Voltage					

No	Item			
4	Flow Computer			
	Quantity	1		
	Type	Local		
	Display	LCD		
	Displayed values	Standard Flow Rate, Standard Totalising Volume		
	Supply Voltage	24 DC V		
	Ingress Protection & Ex Proof	IP65,Ex "d"		
	Input/Output Signal	Pulse/Freq. x 2 Inputs, Analogue (4-20mA) x 4 Input		
		Pulse x 2 Outputs, Analogue (4-20mA) x 2 Outputs		
	Communication	RS485, Modbus RTU Protocol		
	Configuration Software	Required		
5	Personal Computer Quantity Type Processor OS Memory Storage Display	1 Workstation laptop 12 th Gen Intel® Core™ i9 Windows 11 Home (genuine) 32 GB 1 TB SSD 15.6 inch. display full HD		
6	Tools Kit (200 piece)	Includes, for example but not limited to: screwdriver set, wrench set, Allen key set, pliers set etc.		

- 1) Price includes:
- Country of origin certificate ratified by Trade Bureau & Iraqi embassy therein, for items (1,2,3&4). Accredited calibration certificates, are required for items (1,2&3) above.
- 365 days of warranty, starting from the date of delivery to the end user & technical compliance.
- (20) m armored power cable.
- 2) For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025-2017 apply.
- 3) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland

SECTION 4: AKKAS CONDENSATE FLOWMETER

No.	Technical Specifications				
1	i. General				
	Quantity	1			
	Principle	Coriolis	Mass Flow Meter		
	Line Size [inch]	3			
	Meter Size [inch]	3			
	Mounting	Inline			
	Flow Direction	Uni-Dir	ectional		
	Orientation	Horizor	ntal		
	Mass Flow Meter Accuracy	±0.1%	of Operating Flow Rate		
	Compliance		PMS CH5, SEC6		
	Pressure Drop [Kg/cm²(g)]	≤0.5			
	ii. Process Design				- 1
	Process Fluid	Liquid ((see note:3)		
	Flow Rate Range [bbl/day]	Min	1000	Max	17000
	Temperature Range [°C]	Min	-5	Max	121
	Pressure Range [Kg/cm²(g)]	Min	34		
		IVIIII	J 4	Max	137
	iii. Flow Transmitter	A1	00001		
	Material Body/Housing		um or SS304		
	Display	LCD			
	Language of Display	English			
	Measured and displayed values Mass to Volume Conversion		ate (bbl/h) , Totalising Vol	iume (bbl)	
	Output Signals	Direct	20m A. Dulan - /F		
	Supply Voltage		20mA, Pulses/Freq		
	Ingress Protection & Ex. Proof	24V DC IP65, E			
2	Pressure Transmitter	1F05, E	л u		
	Quantity	1			
1	Accuracy	± 0.5 %	of span		
	Pressure Range [Kg/cm2(g)]	Min	34	Max	137
	Supply Voltage	24V DC	;		
	Ingress Protection & Ex. Proof	IP65, E	x "d"		
	Three Way Valve	Require			n
3	Temperature Transmitter	-			
	Quantity	1			
	Accuracy	± 0.5 %	of span		
	Temperature Range [°C]	Min	-5	Max	121
	Supply Voltage	24V DC			
	Ingress Protection & Ex. Proof	IP65, E	x "d"		
4	Flow Computer	4			
	Quantity Type	1 Local			
	Display	LCD			
	Displayed values		d Flow Rate, Standard T	otalisina Vo	lume
	Supply Voltage	24 DC \	/		
	Ingress Protection, Ex. Proof	IP65, E:			
	Input/Output Signal	Pulse/F	req. x 2 Inputs, Analogue	(4-20mA)	4 Input
	Communication	RS485	2 Outputs, Analogue (4-2 Modbus RTU Protocol	20mA) x 2 C	outputs
	Configuration Software	Require			
		, , , , , ,			

- (1) Price includes:
- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
 Country of Origin Certificate ratified by Trade Bureau and Iraqi embassy therein, for items (1,2,3&4).
 Accredited calibration certificate, for items (1,2&3) above.
- (20) m armored power cable.
- (2) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland
- (3) Compositions of liquid:

NO.	TEST PRAMETERS	RESULT
1	N2	0.00
2	CO2	0.14
3	H2S	0.00
4	C1	1.24
5	C2	2.87
6	C3	7.03
7	i-C4	2.13
8	n-C4	7.65
9	i-C5	4.43
10	n-C5	6.46
11	C6	13.19
12	C7	16.54
13	C8	11.25
14	C9	10.64
15	C10	8.08
16	C11	8.35
17	C12	0.00
18	C13	0.00

SECTION 5: OTHER REQUIREMENTS

No.	Item	Unit	QTY
1	Training course for calibration and maintenance of flowmeters (Coriolis & Ultrasonic), shall be given for custody transfer department employees. Notes: a - Training Location: Iraq b - Duration: 5 days c - Price includes, but not limited to: - Accommodation and meals - Domestic travel and transport	Person	4
2	Supply Galvanized Close Type Cable Tray, 50mm x 50 mm, Sheet Thickness: 1.5 mm	m	60
3	Supply concrete cube (30 cm), with (50x50 mm) galvanized U-Channel in the center, as shown in below:	piece	30

3

رابعاً: المتطلبات

- 1. شراء وتجهيز عدادات الجريان والمعدات والمواد المذكورة بالفقرة/ثالثا أعلاه.
 - 2. مدة التسليم (365) يوم.
- 365) يوم لكافة الاجهزة والمعدات، بدءاً من تاريخ تسليم المعدات والمواد للطرف الثاني والمطابقة الفنية.
 - تقديم كتيبات النصب والتشغيل والصيانة لعدادات الجريان أعلاه، وباللغة الانكليزية.
- قسهادة منشأ مصدقة من غرفة التجارة والسفارة العراقية في بلد المنشأ، لكافة العدادات وحواسيب الجريان ومرسلات الضغط والحرارة.
 - 6. شهاد معايرة نافذة ومعتمدة لكافة العدادات ومرسلات الضغط والحرارة.

خامساً: التدريب

برنامج تدريبي على معايرة وصيانة عدادات الجريان (Coriolis, Ultrasonic)، يقدم الى منتسبي قسم قياسات نقل الملكية، وبواقع (4) الشخاص.

ملاحظات:

- موقع التدريب: داخل العراق
 - المدة: (5) أيام
- السعر يشمل على سبيل المثال لا الحصر اجور السكن ووجبات الطعام والسفر والتنقل الداخلي.

سادساً: العنوان

شركة نفط الوسط / بغداد / بوب الشام / خلف محطة القدس الحرارية

Sub/Requisition of Oil & Gas Flowmeters Purchase

i. Scope of work:

Below are the required works to execute the aforementioned requisition in accordance with table of quantities and the required technical specification at single-stage bid.

ii. General description:

Requisition of Oil & Gas Flowmeters purchase, according to (API MPMS and AGA).

iii. Equipment and Instruments:

As shown in the table of quantities below:

SECTION 1: DRY GAS FLOWMETER

i. General

ii Gollolai		
Service	Service Dry gas flow measurement	
Quantity 1		
Meter Type, Orientation	Inline Ultrasonic , Horizontal	
Measuring Method	Ultrasonic, transit time difference	1
Error	1 % of flow rate or better (See note:3)	
No. of Paths 2 (at least)		
Meter Size [inch]	6	
Tube Material	Stainless Steel or Carbon Steel	
Compliance AGA-9		

ii. Process Data

Process Fluid	Dry gas	(See note:5)		
Operating Flow Rate [MMSCF/D]:	Min	3	Max	75
Operating Temperature [°C]	Min	-5	Max	65
Operating Pressure [Kg/cm²(g)]	Min	10.3	Max	103

iii. Flow Transmitter

Display	LCD
Measured and displayed values	Line#1: Volume Flow Rate Line#2: Totalising Volume
Language of Display	English
Mounting Version	Compact
Output Signal	4-20mA HART + Impuls
Supply Voltage	24 DC V
Registration Unit	MMSCF
Material Body/Housing	Stainless Steel or Aluminum
Ingress Protection, Ex. Proof	IP 65, Ex"d"

iv. Other

Integrated pressure transmitter	Required
Integrated temperature transmitter	Required

v. Notes:

- 1) Price Includes;
 - 365 days of warranty, starting from the date of delivery to the end user & technical compliance.
 - Country of origin certificate ratified by Trade Bureau & Iraqi embassy therein, and accredited calibration certificate are required for the flowmeter above.
 - (20) m armored power cable.
- 2) Environmental Data
 - Ambient Temperature [°C]: ≤55 (Under Sunshade) Barometric Pressure [Kg/cm²(g)]: 1.01325

≤80 (Direct Sun Light)

- Relative Humidity (%): 5 ... 95
- 3) For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025-2017 apply.
- 4) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland
- 5) Gas Compositions

Test	0/0	المراجعة المحص والمراجعة المحص
Methane (Ci) Vol % (min)	7.5	ميثان % هجم (الادنى)
Ethane (C1) Vol %	20	ابِنْنَ % حجم (الانصر)
Propane (C3) Vol %(max)	0.5	برويان% شيم (الاقصر)
Butanes Vol % (max)	0.25	بيوتان %حجم (الأقصى)
Pentanes and Heavier Vol % (max)	0.25	بنتين وائش % دوم (الاتصر)
Nitrogen (N2) Vol%(max)	1.2	نيتروجين%حجم (الاقصى)
Carbon Dioxide (Co2) Vol %(max)	2.5	تُنْالَى الكسية الكاربون % حجم (الاتَّصَى)
11,S + COS mg/m ¹ (max)	1-	تبريتيد الهيدروجين + كبريتيد الكاربونيل (ملغرام/مترمكعب) (الاقصم)
***H ₁ S ppmv (max)	4.0	كبرينيد الهيدروجين (جزء بالملبون حجماً) (الالحص)
Mcrenplan (RSH) mg/m³ (max)	15	مرتبتان (ملغ ام/باترمذب) (الاقصس)
Total Sulfur mg/m3 (max)	40	معتوى الكبريت (ملغرام/مئرمگعب) (الاقصى)
**Water Dew point C @70 bar (max)	-	* * درجة الندى للماء (عند · ٧ بار) م ((الانكصى)
Water Dew point Cº @40 bar (max)	-40	درجة الندى للماء (عند ، ؛ بار) م ٥ (الاتحصى)
denearbon Dew point (HC) C @ 70 bar,	****	درجة الندى للهيدروكاريونات (عند · ٧بار) م٥ (الاقصر)
edrocarbon Dew point (HC) С @ 40 bar. (max)	-36	نر به الندى للهينزويكاريونلت (عند ، ابال) م° (الاقتصى)
"Mercury (Hg) ng/m"	10	* لسبة الزليل ناثو غرام/ مترمكعب
Oxygen (O1) Vol% (max)	0.1	الارتسبين (عبماً) (الاقصى)

SECTION 2: CLAMP-ON FLOWMETER

	-		
	Gei	ום ח	ral
١.	OCI	16	ıaı

Measuring Principle	Ultrasonic, transit time difference
Quantity	1
Flow Transmitter Type	Portable, battery-powered
Flow sensors Type	Clamp-on
Compliance	API MPMS CH5, SEC8
Display	LCD
Language of Display	English
Units	Metric, British and US
Power Supply	Internal rechargeable battery
Battery Charger	230 VAC, 50 Hz

ii. Process Design

Process Fluid	Crude Oil		
Operating Flow Rate [m³/h]	Min: 10	Max: 720	
Operating Temperature [C]	Crude Oil: 4 65	Water: 4 80	
Operating Pressure [Kg/cm²(g)]	1 20		
Viscosity [cSt]	< 100		

iii. Piping Details

Pipe Material	Metal	
Pipe Size [inch]	2 16	
Wall thickness[mm]	< 50	
Flow Orientation	Horizontal	

iv. Environment Details

Barometric Pressure [Kg/cm²(g)]	1.0325
Ambient Temperature Min[°C]	0 65

v. Measuring Accuracy

Reference conditions	Medium: Water; Medium Temp 20 °C
Maximum measuring error	±1% of the measured value for (DN≥50mm and V > 0.5 m/s) ±3% of the measured value for (DN<50mm and V > 0.5 m/s)
Repeatability	≤±0.2%

vi. Additional Requirements and Details

vi. Additional Requirements an	u Details
Certificate & Documents	- Country of origin certificate ratified by Trade Bureau and Iraqi embassy
	therein
	- Accredited inspection certificate.
Country of Origin	USA, Japan, UK, Netherlands, Germany, France, Switzerland
Warranty	365 Days, starting from the date of delivery to the end user and technical compliance
Hard Carrying Case	Required

SECTION 3: 3RD STAGE SEPARATOR FLOWMETER (TRAIN A)

No	SECTION S. SKD STAGE		tem	Angula er gri	
1	i. General				
	Meter Type, Orientation	Inline Ultr	asonic , Horizontal		
	Quantity	1	,		
	Measuring Method	Ultrasonio	, transit time difference		
	Error		w rate or better (see note:2)		
	Compliance	API MPM	S CH5 SEC8		
	No. of Paths	Vender to	Advise		
	Line Size [inch]	8			
	Meter Size [inch]	8			
	Tube Material	Stainless	Steel or Carbon Steel		
	ii. Process Data				
	Process Fluid	Crude Oil			
	Operating Flow Rate [m³/h]:	Min	5	Max	50
	Design Temperature [°C]	Min	5	Max	85
	Operating Pressure	Min	2	Max	10
	[Kg/cm ² (g)]		_		
	Design Pressure [Kg/cm²(g)]	Min	15	Max Max	15 160
	Viscosity @ 26.7 °C [cst] Density @ 15 °C [Kg/m³]	Min	800		1000
		iviin ≤ 500	800	Max	1000
	Salt [ppm]	≤ 500 ≤ 10			
	H₂S [ppm] Water Content [%]	≤ 10 ≤ 3			
	iii. Flow Transmitter	2 3			
	Display	LCD			
	Language of Display	English			
	Mounting Version	Compact			
	Output Signal		y/Pulse,& 4-20 mA HART		
	Supply Voltage	24 DC V	y// 0.00,0 / 20 //////////		
	Measured and displayed values		Flow Rate, Totalising Volume	•	
	Material Body/Housing	Stainless	Steel or Aluminum		
	Ingress Protection & Ex. Proof	IP 65, Ex	"d"		
2	Pressure Transmitter Quantity	1			
	Accuracy		span (or Better)		
	Design Pressure [Kg/cm²(g)] Display	16 LCD			
	Unit	Bar			
	Ingress Protection & Ex.	IP 65, Ex	"d"		
	Proof Supply Voltage	24 DC V Required			
	Three Way Valve	required			
3	Temperature Transmitter	4			
	Quantity Accuracy	1 + 1 % of	span (or Better)		
	Design Temperature	85	opan (or bottor)		
	Ingress Protection & Ex.	IP 65, Ex	: "d"		
	Proof Supply Voltage	24 DC V			
	Cappiy Voltage				

No		Item
4	Flow Computer	
	Quantity	1
	Type	Local
	Display	LCD
	Displayed values	Standard Flow Rate, Standard Totalising Volume
	Supply Voltage	24 DC V
	Ingress Protection & Ex Proof	IP65,Ex "d"
	Input/Output Signal	Pulse/Freq. x 2 Inputs, Analogue (4-20mA) x 4 Input
	The state of the s	Pulse x 2 Outputs, Analogue (4-20mA) x 2 Outputs
	Communication	RS485, Modbus RTU Protocol
	Configuration Software	Required
5	Personal Computer Quantity	
	Type	Manhatatian to the
	Processor	Workstation laptop
	OS	12th Gen Intel® Core™ i9
	Memory	Windows 11 Home (genuine)
	Storage	32 GB
		1 TB SSD
	Display	15.6 inch. display full HD

- 1) Price includes:
- Country of origin certificate ratified by Trade Bureau & Iraqi embassy therein, for items (1,2,3 & 4)
- Accredited calibration certificates, are required for items (1,2&3) above.
- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
- (20) m armored power cable.
- 2) For error calculation, the specified reference conditions for the calibration of the flowmeter according to ISO/IEC 17025-2017 apply.
- 3) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland

SECTION 4: AKKAS CONDENSATE FLOWMETER

No.	Technical Specifications	THE STREET			Description of the Control of Control
1	i. General				
	Quantity	1			
	Principle	Coriolis	Mass Flow Meter		
	Line Size [inch]	3			
	Meter Size [inch]	3			
	Mounting	Inline			
	Flow Direction		rectional		
	Orientation	Horizo			
	Mass Flow Meter Accuracy				
	Compliance		of Operating Flow Rate		
	Pressure Drop [Kg/cm²(g)]		PMS CH5, SEC6		
	Pressure Drop [kg/cm (g)]	≤0.5			
	ii. Process Design				
	Process Fluid	Liquid	(see note:3)		
	Flow Rate Range [bbl/day]	Min	1000	Max	17000
	Temperature Range [°C]	Min	-5	Max	121
	Pressure Range [Kg/cm²(g)]	Min	34	Max	137
	III Flow Transmitter		J.	IVIGA	.57
	iii. Flow Transmitter	Λ1· ·!	or CC304		
	Material Body/Housing		um or SS304		
	Display	LCD			
	Language of Display	Englisl			
	Measured and displayed values		tate (bbl/h) , Totalising Vo	lume (bbl)	
	Mass to Volume Conversion	Direct			
	Output Signals		20mA, Pulses/Freq		
	Supply Voltage	24V D			
	Ingress Protection & Ex. Proof	IP65, 1	Ex "d"		
2	Pressure Transmitter				
	Quantity	1			
	Accuracy		6 of span		
	Pressure Range [Kg/cm2(g)]	Min	34	Max	137
	Supply Voltage	24V D			
	Ingress Protection & Ex. Proof	IP65, I	Ex "d"		
	Three Way Valve	Requir	ed		
3	Temperature Transmitter				
	Quantity	1			
	Accuracy	± 0.5 %	% of span		
	Temperature Range [*C]	Min	-5	Max	121
	Supply Voltage	24V D	C		
	Ingress Protection & Ex. Proof	IP65, I	Ex "d"		
4	Flow Computer				
	Quantity	1			
	Type	Local			
	Display Displayed values	LCD	and Flow Date Standard T	'ataliaina \/a	lumo
	Displayed values Supply Voltage	24 DC	ard Flow Rate, Standard T V	otalising vo	nume
	Ingress Protection, Ex. Proof	IP65,			
	Input/Output Signal		Freq. x 2 Inputs, Analogue	e (4-20mA) :	x 4 Input
		Pulse	x 2 Outputs, Analogue (4-		
	Communication		, Modbus RTU Protocol		
	Configuration Software	Requi	red		

(1) Price includes:

- 365 days of warranty, starting from the date of delivery to the end user and technical compliance.
 Country of Origin Certificate ratified by Trade Bureau and Iraqi embassy therein, for items (1,2,3&4).
 Accredited calibration certificate, for items (1,2&3) above.
 (20) m armored power cable.

- (2) Country of Origin: USA, Japan, UK, Netherlands, Germany, France, Switzerland
- (3) Compositions of liquid:

NO.	TEST PRAMETERS	RESULT
1	N2	0.00
2	CO2	0.14
3	H2S	0.00
4	C1	1.24
5	C2	2.87
6	C3	7.03
7	i-C4	2.13
8	n-C4	7.65
9	i-C5	4.43
10	n-C5	6.46
11	C6	13.19
12	C7	16.54
13	C8	11.25
14	C9	10.64
15	C10	8.08
16	C11	8.35
17	C12	0.00
18	C13	0.00

SECTION 5: OTHER REQUIREMENTS

No.	Item	Unit	QTY
1	Training course for calibration and maintenance of flowmeters (Coriolis & Ultrasonic), shall be given for custody transfer department employees. Notes: a - Training Location: Iraq b - Duration: 5 days c - Price includes, but not limited to: - Accommodation and meals - Domestic travel and transport	Person	4
2	Supply Galvanized Close Type Cable Tray, 50mm x 50 mm, Sheet Thickness: 1.5 mm	m	60
3	Supply concrete cube (30 cm), with (50x50 mm) galvanized U-Channel in the center, as shown in below:	Piece	30

iv- Requirements:

- 1- Purchase and Supply the flowmeters, equipment and materials mentioned in Paragraph/3 above.
- 2- Period of delivery: (365) days.
- 3- (365) days of warranty for all instruments and equipment, starting from the date of delivery to the end user and technical compliance for instruments and equipment.
- 4- Supply manuals of (installation, operation and maintenance) for the above-mentioned flowmeters, in English language.
- 5- Country of origin certificate ratified by Trade Bureau and Iraqi embassy therein, is required for (flowmeters, flow computers, PT& TT).
- 6- Accredited and valid calibration certificates are required for (flowmeters, PT and TT)

v- Training:

Training course for calibration and maintenance of flowmeters (Coriolis & Ultrasonic), shall be given for (4) personnel from custody transfer department.

Notes:

- Training Location: Iraq
- Duration: (5) days
- Price includes, but not limited to, accommodation, meals, domestic travel and transport.

vi- Address:

Midland Oil Company / Baghdad / Bob Al-Sham / behind Al-Quds Thermal Power Station

4- Drawings

(Does not include drawings)

<u>4- المخططات</u> (لا تتضمن مخططات)

Bid documents [Insert "include" or "does not include"] drawings.

وثائق العطاء هذه [ادخل "تتضمن" أو "لا تتضمن"] مخططات. [ادخل قائمة المخططات الأتية إذا كانت هذه الوثائق سيتم تضمينها]

[Insert the following list of drawings if these documents will be included]

المخططات	قائمة	
الغرض	اسم المخطط	رقم المخطط
		£
*		

List of Drawings		
No. of Plan	Name of Plane	Purpose

5- Test and Engineering Inspection (Does not include)

4 1 0 A

5- الاختبار والفحص الهندسي لا تتضمــــن

	ن والفحص الهندسي	قائمة الاختبارات والفحص الهندسي		
الاختبار و/أو الفحص المهندسي	وصف ملخص لكل بند	رقم البند		

Item No.	Brief Item	Description	of each	Test Inspec	and/or tion	Engineering
					¥	
128						