

# COMPAGNIE TUNISIENNE DE FORAGE

19 RUE DE L'ARTISANAT CHARGUIA II – 2035 L'AEROPORT-ARIANA TUNISIA

FAX N°(216-70) 836 568/837 041 PHONE N°(216-70) 837 322

## FAX MESSAGE

**FROM : C.T.F**

**FAX REF :**

**DATE : 04/09/2023**

**CONTACT NAME :**

**Page (01 ) of (26) including this page**

**TO :**

**ATT: :**

**FAX N° : VIA MAIL**

**Y/REF :**

**COPY :**

**SUBJECT : INVITATION TO BID N° PP 2023/510  
SUPPLY OF 08 LOTS OF VARIOUS SPARE PARTS**

*Compagnie Tunisienne de Forage, (CTF) is now seeking competitive bids for the Supply of :*

### **SUPPLY OF 08 LOTS OF VARIOUS SPARE PARTS**

*To this purpose you are hereby invited to submit your best prices and delivery in full compliance with the following terms and conditions.*

*Bidders can submit for one lot or more.*

#### **A - SCOPE OF WORK :**

*Spare parts must be in compliance with technical specifications as detailed in attachment A.*

#### **B- ACKNOWLEDGEMENT:**

*You are kindly requested to acknowledge receipt of this inquiry by return fax or email.*

#### **C - BID CLOSING DATE:**

*Bids must be sent to CTF head office as soon as possible but no later than 14 September 2023 @10H00 local time as per bid submission instructions hereinafter.*

#### **D- FORM OF BIDS:**

*Bids shall be in the form of pro forma invoices as per the formats shown under attachments B and C and shall include all requested details.*

#### **E – VALIDITY:**

*Bids shall be valid for a period of at least 90 days from bid closing date.*

#### **F/ BID SUBMISSION PROCEDURE :**

*Bids shall be submitted by one of the ways listed under articles G1 and G2 : The bidder is free to choose the appropriate way :*

#### **F-1- IN A SEALED OPAQUE ENVELOPE AS FOLLOWS:**

*Within this sealed opaque envelope bidder shall include the following two (02) separate internal sealed envelopes:*

#### **- The first internal sealed envelope shall:**

*\* Indicate:*

- **"envelope N°1 'UNPRICED Technical offer'"**

- Tenderer's name and address

\* Contain:

- The **Unpriced Technical offer** (in the format shown in **Attachment B**) duly signed dated and stamped.
- Any technical information related to the proposed Spare Parts.

- **The Second internal sealed envelope shall:**

\* Indicate:

- **"envelope N°2 'PRICED' Financial offer"**

- Tenderer's name and address

\* Contain:

- The **Priced Financial offer** (as per the format provided under **attachment C**) duly signed dated and stamped.

- **The outer sealed envelope containing the 2 internal sealed envelopes shall** be sent by registered mail or by courier to the following address so as to arrive as soon as possible but no later than, **14 September 2023 @10H00 local time.**

**COMPAGNIE TUNISIENNE DE FORAGE  
19 RUE DE L'ARTISANAT CHARGUIA II  
2035 ARIANA - TUNISIA  
ATT : PRESIDENT OF THE TENDER BOARD  
"DO NOT OPEN"  
INQUIRY N° PP/2023/510  
SUPPLY OF 08 LOTS OF VARIOUS SPARE PARTS**

**F-2- BY E-MAIL TO: *closed.bids@ctf.com.tn* as per the pro forma provided under attachment B and C**

**G - CONTACTS:**

Any further information or clarification required during the bidding period to aid bidder in the preparation of his bid shall be requested in writing by fax addressed to:

**COMPAGNIE TUNISIENNE DE FORAGE  
FAX N° (216-70) 837 041 – 836 568  
ATT : TENDER BOARD**

***H - SPECIAL NOTES:***

- H.1- By written notice, CTF may modify the inquiry terms and conditions in any aspect by way of clarification, addition, deletion or otherwise, prior to bid closing date.*
- H.2- CTF shall be under no obligation to accept the lowest or any bid submitted hereunder and CTF shall not be held liable for any expenses incurred in the preparation or submittal of bids or any subsequent discussion and/or negotiation.*
- H.3– The financial offers and after the correction of possible errors of calculation, will be classed from the lowest bidder to the highest bidder and CTF will select the best offer which meets CTF technical.*
- H.4-Bidders are requested to quote for only Ex-Works*
- H.5-Certificate of conformance to be supplied in case P.O is placed.*

***BEST REGARDS,***

***C.T.F.***

***PROCUREMENT & MARKETING MANAGER***

**ATTACHMENT A**  
**TECHNICAL SPECIFICATIONS OF THE REQUESTED PARTS**

**LOT01: Caterpillar parts for 3512 engine.**

<i>Item</i>	<i>Description</i>	<i>Reference</i>	<i>QTY</i>
<b>1</b>	<b>Core Assy</b>	<b>7W5456</b>	<b>2</b>
<b>2</b>	<b>Coolant (20 L)</b>	<b>205-6612</b>	<b>1000 liters</b>

**LOT02: Flow meter 2"**

<i>Item</i>	<i>Description</i>	<i>Reference</i>	<i>QTY</i>
<b>1</b>	<b>Flow meter 2" NPT-F (meter size 13)</b> <b>(Débitmètre à surface variable pour liquide et gaz)</b> <b>Search in : <a href="http://www.brooksinstrument.com">http://www.brooksinstrument.com</a></b> <b>See the attached file in the end of the inquiry.</b>	<b>MT3809E15DABAA1A1</b>	<b>2</b>

**LOT03: Sling snub line saver (\*)**

<i>Item</i>	<i>Description</i>	<i>Reference</i>	<i>QTY</i>
<b>1</b>	<b>Sling snub line saver assy HT100 1HT65</b>	<b>10375537-01</b>	<b>4</b>

(\*)NB: The snub line saver must be designed according to API-7K (To provide COC according to API-7K)



**U-CLAMP**

See the links:

<https://f-e-t.com/drilling/pipe-handling-equipment/rig-floor-equipment/#manual-tongs>  
**NOV 10375537-01 SLING, sNUB LINE SAVER ASSY HT200 HT100 HT65 | eBay**

**LOT04: Spare parts for HYSTER Forklifts model [H16XM-12](#) /  
Serial Numbers: [B238E02876U](#) & [B238E02875U](#)**

Item	Description	Reference	QTY
1	Ensemble Tuyau	1661048	2
2	Ensemble Tuyau	1661049	2
3	Capteur	1635304	1
4	Clapet de Décharge	1635305	1
5	Bouchon Carburant (Verrouillage)	4099111	2
6	Actionneur	4110437	1
7	Capteur Ensemble (Température)	1691873	1
8	Capteur (position)	1644129	1
9	Interrupteur, pression d'huile	1543439	1
10	Capteur	4123350	1
11	Kit de Joints	4077837	2
12	Capteur	4024296	1
13	Capteur	4024302	1
14	Capteur	4024299	1
15	Interrupteur , contamination du filtre	4024245	1
16	Reniflard	1564721	2
17	Axe	4050064	4
18	Axe	4050070	4
19	Bague	4050062	8
20	Maillon	4050061	4
21	KIT CARDON	4040933	4
22	SOUPAPE DE FREIN (FREIN A BAIN D'HUILE)	1487209	1
23	Reniflard	4113864	2
24	POULIE (ALTERNATEUR)	4012350	1
25	TETE DE FILTRE	4110438	1
26	Adaptateur	4110439	2

**LOT05: O-rings for mud circuit**

Item	Description	Reference	QTY
1	O-RING 6" 3/4 (Ø6" 3/4 X 8"1/2 X 7/8" )	SR-600-OR	15
2	O-RING 8" 3/4 (Ø8" 3/4 X10"1/2 X 7/8" )	SR-800-OR	15
3	O-RING 10" 3/4 (Ø10" 3/4 X12"1/2 X 7/8" )	SR-1000-OR	20
4	O-RING 12" 3/4 (Ø12" 3/4 X14"1/2 X 7/8" )	SR-1200-OR	15

**LOT06: Spare Parts for Ingersoll-Rand [K6U](#) air winch**

Item	Description	Reference	QTY
1	seal	5840-5931	2
2	Bearing	5080-0030	2

**LOT07: Spare Parts for BOP HYDRIL 13"5/8 (\*\*)**

Item	Description	Reference	QTY
1	PISTON	3101058	4
2	LINER	3102256	4

(\*\*)NB: To provide:-API-16A monogram  
-COC as per API-16A

LOT08: Fire Pump					
Item	Description			Reference	QTY
1	Moto pompe d’incendie Technical specifications:			HP400	1
		SPECIFICATIONS	MINIMUM REQUIRED		
	Fire pump	Energy	Diesel		
		ENGINE SPECIFICATIONS	26hp at 3600 RPM Water cooled engine. 3-cylinder diesel engine. Electric start. 6 gallon (22 l) detachable fuel tank.		
		Pump specifications	Two stage centrifugal pump Pump body made from high resistance aluminum alloy. Bronze impellers. Mechanical shaft seal. Stainless steel pump shaft. Electric priming system, guaranteed up to 20’ (6 meter) lift. Two 2 1/2” (65 mm) delivery outlets One 4” (100 mm) suction inlet		
		PERFORMANCE	350 GPM (1325 lpm) @ 50 PSI (3.45 bar)		
		Control Panal	Engine start/stop button. Throttle control lever. Operating panel light. Pilot lights. Pressure gauge. Vacuum pressure gauge.		
		Requirement	Technical specification is mantadory		

# ATTACHMENT B

## UNPRICED TECHNICAL OFFER

LOT01: Caterpillar parts

### PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

FROM :

BIDDER'S FULL NAME: .....

ADDRESS: .....

TELEPHONE N° : .....

FAX N°: .....

CONTACT NAME: .....

TO:

COMPAGNIE TUNISIENNE

DE FORAGE

19 RUE DE L'ARTISANAT 2035

CHARGUIA II ARIANA – L'AEROPROT

TUNIS - TUNISIA

PRO-FORMA INVOICE N° : .....

DATE : .....

ITEM	QTY	DESCRIPTION
		Detailed description of the EQUIPEMENT

#### AUTHORIZED SIGNATURE

NAME : .....

SIGNATURE : .....

TITLE : .....

DATE : .....

COMPANY STAMP

**UNPRICED TECHNICAL OFFER**

**LOT02: Flow meter 2"**

**PRO-FORMA INVOICE FORMAT  
USING YOUR COMPANY LETTER HEAD**

**FROM :**

**BIDDER'S FULL NAME:** .....

**ADDRESS:** .....

**TELEPHONE N° :** .....

**FAX N°:** .....

**CONTACT NAME:** .....

**TO:**

**COMPAGNIE TUNISIENNE**

**DE FORAGE**

**19 RUE DE L'ARTISANAT 2035**

**CHARGUIA II ARIANA – L'AEROPROT**

**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

<i>ITEM</i>	<i>QTY</i>	<i>DESCRIPTION</i>
		<i>Detailed description of the EQUIPEMENT</i>

**AUTHORIZED SIGNATURE**

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP**



## UNPRICED TECHNICAL OFFER

*LOT03: Sling snub line saver*

### PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

**FROM :**

**BIDDER'S FULL NAME:** .....

**ADDRESS:** .....

**TELEPHONE N° :** .....

**FAX N°:** .....

**CONTACT NAME:** .....

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**19 RUE DE L'ARTISANAT 2035**

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**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION
		Detailed description of the EQUIPEMENT

#### AUTHORIZED SIGNATURE

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP**

**UNPRICED TECHNICAL OFFER**

**LOT04: Spare parts for Hyster Forklifts**

**PRO-FORMA INVOICE FORMAT  
USING YOUR COMPANY LETTER HEAD**

**FROM :**

**BIDDER'S FULL NAME:** .....

**ADDRESS:** .....

**TELEPHONE N° :** .....

**FAX N°:** .....

**CONTACT NAME:** .....

**TO:**

**COMPAGNIE TUNISIENNE**

**DE FORAGE**

**19 RUE DE L'ARTISANAT 2035**

**CHARGUIA II ARIANA – L'AEROPROT**

**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

<i>ITEM</i>	<i>QTY</i>	<i>DESCRIPTION</i>
		<i>Detailed description of the EQUIPEMENT</i>

**AUTHORIZED SIGNATURE**

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP**

# UNPRICED TECHNICAL OFFER

LOT05: O-rings for mud circuit

## PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

**FROM :**

**BIDDER'S FULL NAME:** .....

**ADDRESS:** .....

**TELEPHONE N° :** .....

**FAX N°:** .....

**CONTACT NAME:** .....

**TO:**

**COMPAGNIE TUNISIENNE**

**DE FORAGE**

**19 RUE DE L'ARTISANAT 2035**

**CHARGUIA II ARIANA – L'AEROPROT**

**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION
		Detailed description of the EQUIPEMENT

### AUTHORIZED SIGNATURE

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP**

# UNPRICED TECHNICAL OFFER

LOT06: Spare Parts for Ingersoll-Rand K6U Air winch

## PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

FROM :  
BIDDER'S FULL NAME: .....  
ADDRESS: .....  
TELEPHONE N° : .....  
FAX N°: .....  
CONTACT NAME: .....

TO:  
COMPAGNIE TUNISIENNE  
DE FORAGE  
19 RUE DE L'ARTISANAT 2035  
CHARGUIA II ARIANA – L'AEROPROT  
TUNIS - TUNISIA

PRO-FORMA INVOICE N° : .....

DATE : .....

ITEM	QTY	DESCRIPTION
		Detailed description of the EQUIPEMENT

### AUTHORIZED SIGNATURE

NAME : .....

SIGNATURE : .....

TITLE : .....

DATE : .....

COMPANY STAMP

**UNPRICED TECHNICAL OFFER**  
**LOT07: Spare Parts for BOP HYDRIL 13”5/8**

<b>PRO-FORMA INVOICE FORMAT</b> <b>USING YOUR COMPANY LETTER HEAD</b>
--

**FROM :**  
**BIDDER'S FULL NAME:** .....  
**ADDRESS:** .....  
**TELEPHONE N° :** .....  
**FAX N°:** .....  
**CONTACT NAME:** .....

**TO:**  
**COMPAGNIE TUNISIENNE**  
**DE FORAGE**  
**19 RUE DE L'ARTISANAT 2035**  
**CHARGUIA II ARIANA – L'AEROPROT**  
**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE** : .....

ITEM	QTY	DESCRIPTION
		Detailed description of the EQUIPEMENT

**AUTHORIZED SIGNATURE**

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

<b>COMPANY STAMP</b>
----------------------

# UNPRICED TECHNICAL OFFER

LOT08: Fire Pump

## PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

**FROM :**

**BIDDER'S FULL NAME:** .....

**ADDRESS:** .....

**TELEPHONE N° :** .....

**FAX N°:** .....

**CONTACT NAME:** .....

**TO:**

**COMPAGNIE TUNISIENNE**

**DE FORAGE**

**19 RUE DE L'ARTISANAT 2035**

**CHARGUIA II ARIANA – L'AEROPROT**

**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION
		Detailed description of the EQUIPEMENT

### AUTHORIZED SIGNATURE

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP**

# ATTACHMENT C

## PRICED FINACIAL OFFER

LOT01: Caterpillar parts for 3512 engine

### PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

FROM :  
BIDDER'S FULL NAME: .....  
ADDRESS: .....  
TELEPHONE N° : .....  
FAX N°: .....  
CONTACT NAME: .....

TO:  
COMPAGNIE TUNISIENNE  
DE FORAGE  
19 RUE DE L'ARTISANAT 2035  
CHARGUIA II ARIANA – L'AEROPROT  
TUNIS - TUNISIA

PRO-FORMA INVOICE N° : .....

DATE : .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL FCA				

- MANUFACTURER NAME OF EACH ITEM: ONLY OEM PARTS ARE ACCEPTED
- COUNTRY OF ORIGIN : .....
- COUNTRY OF EMBARKATION : .....
- ESTIMATED NET AND GROSS WEIGHT : .....
- DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks .
- TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT
- VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) : .....
- GENERAL TERMS AND CONDITIONS : .....

#### AUTHORIZED SIGNATURE

NAME : .....

SIGNATURE : .....

TITLE : .....

DATE : .....

COMPANY STAMP :

# PRICED FINACIAL OFFER

LOT02: *Flow meter 2"*

## PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

**FROM :**  
**BIDDER'S FULL NAME:** .....  
**ADDRESS:** .....  
**TELEPHONE N° :** .....  
**FAX N°:** .....  
**CONTACT NAME:** .....

**TO:**  
**COMPAGNIE TUNISIENNE**  
**DE FORAGE**  
**19 RUE DE L'ARTISANAT 2035**  
**CHARGUIA II ARIANA – L'AEROPROT**  
**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- **MANUFACTURER NAME OF EACH ITEM: ANY MANUFACTURER WILL BE ACCEPTED**
- **COUNTRY OF ORIGIN :** .....
- **COUNTRY OF EMBARKATION :** .....
- **ESTIMATED NET AND GROSS WEIGHT :** .....
- **DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks.**
- **TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT**
- **VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) :** .....
- **GENERAL TERMS AND CONDITIONS :** .....

### AUTHORIZED SIGNATURE

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP :**



## PRICED FINACIAL OFFER

LOT03: Sling snub line saver assy

### PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

FROM :  
BIDDER'S FULL NAME: .....  
ADDRESS: .....  
TELEPHONE N° : .....  
FAX N°: .....  
CONTACT NAME: .....

TO:  
COMPAGNIE TUNISIENNE  
DE FORAGE  
19 RUE DE L'ARTISANAT 2035  
CHARGUIA II ARIANA – L'AEROPROT  
TUNIS - TUNISIA

PRO-FORMA INVOICE N° : .....

DATE : .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- MANUFACTURER NAME OF EACH ITEM: ANY MANUFACTURER WILL BE ACCEPTED
- COUNTRY OF ORIGIN : .....
- COUNTRY OF EMBARKATION : .....
- ESTIMATED NET AND GROSS WEIGHT : .....
- DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks..
- TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT
- VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) : .....
- GENERAL TERMS AND CONDITIONS : .....

#### AUTHORIZED SIGNATURE

NAME : .....

SIGNATURE : .....

TITLE : .....

DATE : .....

COMPANY STAMP :

**PRICED FINACIAL OFFER**

**LOT04: Spare parts for Hyster Forklifts**

**PRO-FORMA INVOICE FORMAT  
USING YOUR COMPANY LETTER HEAD**

**FROM :**  
**BIDDER'S FULL NAME:** .....  
**ADDRESS:** .....  
**TELEPHONE N° :** .....  
**FAX N°:** .....  
**CONTACT NAME:** .....

**TO:**  
**COMPAGNIE TUNISIENNE**  
**DE FORAGE**  
**19 RUE DE L'ARTISANAT 2035**  
**CHARGUIA II ARIANA – L'AEROPROT**  
**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- **MANUFACTURER NAME OF EACH ITEM: ONLY OEM PARTS ARE ACCEPTED**
- **COUNTRY OF ORIGIN :** .....
- **COUNTRY OF EMBARKATION :** .....
- **ESTIMATED NET AND GROSS WEIGHT :** .....
- **DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks..**
- **TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT**
- **VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) :** .....
- **GENERAL TERMS AND CONDITIONS :** .....

**AUTHORIZED SIGNATURE**

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP :**

**PRICED FINACIAL OFFER**  
**LOT05: O-rings for mud circuit**

**PRO-FORMA INVOICE FORMAT**  
**USING YOUR COMPANY LETTER HEAD**

**FROM :**  
**BIDDER'S FULL NAME:** .....  
**ADDRESS:** .....  
**TELEPHONE N° :** .....  
**FAX N°:** .....  
**CONTACT NAME:** .....

**TO:**  
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**DE FORAGE**  
**19 RUE DE L'ARTISANAT 2035**  
**CHARGUIA II ARIANA – L'AEROPROT**  
**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- **MANUFACTURER NAME OF EACH ITEM: ANY MANUFACTURER WILL BE ACCEPTED.**
- **COUNTRY OF ORIGIN :** .....
- **COUNTRY OF EMBARKATION :** .....
- **ESTIMATED NET AND GROSS WEIGHT :** .....
- **DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks.**
- **TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT**
- **VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) :** .....
- **GENERAL TERMS AND CONDITIONS :** .....

**AUTHORIZED SIGNATURE**

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP :**

## PRICED FINACIAL OFFER

LOT06: Spare Parts for Ingersoll- Rand K6U Airwinch

### PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

FROM :  
BIDDER'S FULL NAME: .....  
ADDRESS: .....  
TELEPHONE N° : .....  
FAX N°: .....  
CONTACT NAME: .....

TO:  
COMPAGNIE TUNISIENNE  
DE FORAGE  
19 RUE DE L'ARTISANAT 2035  
CHARGUIA II ARIANA – L'AEROPROT  
TUNIS - TUNISIA

PRO-FORMA INVOICE N° : .....

DATE : .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- MANUFACTURER NAME OF EACH ITEM: ANY MANUFACTURER WILL BE ACCEPTED
- COUNTRY OF ORIGIN : .....
- COUNTRY OF EMBARKATION : .....
- ESTIMATED NET AND GROSS WEIGHT : .....
- DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks.
- TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT
- VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) : .....
- GENERAL TERMS AND CONDITIONS : .....

#### AUTHORIZED SIGNATURE

NAME : .....

SIGNATURE : .....

TITLE : .....

DATE : .....

COMPANY STAMP :

# PRICED FINACIAL OFFER

LOT07: Spare Parts for BOP HYDRIL 13"5/8

## PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

FROM :

BIDDER'S FULL NAME: .....

ADDRESS: .....

TELEPHONE N° : .....

FAX N°: .....

CONTACT NAME: .....

TO:

COMPAGNIE TUNISIENNE

DE FORAGE

19 RUE DE L'ARTISANAT 2035

CHARGUIA II ARIANA – L'AEROPROT

TUNIS - TUNISIA

PRO-FORMA INVOICE N° : .....

DATE : .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- MANUFACTURER NAME OF EACH ITEM: ANY MANUFACTURER WILL BE ACCEPTED
- COUNTRY OF ORIGIN : .....
- COUNTRY OF EMBARKATION : .....
- ESTIMATED NET AND GROSS WEIGHT : .....
- DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks.
- TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT
- VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) : .....
- GENERAL TERMS AND CONDITIONS : .....

### AUTHORIZED SIGNATURE

NAME : .....

SIGNATURE : .....

TITLE : .....

DATE : .....

COMPANY STAMP :

## PRICED FINACIAL OFFER

LOT08: Fire Pump

### PRO-FORMA INVOICE FORMAT USING YOUR COMPANY LETTER HEAD

**FROM :**  
**BIDDER'S FULL NAME:** .....  
**ADDRESS:** .....  
**TELEPHONE N° :** .....  
**FAX N°:** .....  
**CONTACT NAME:** .....

**TO:**  
**COMPAGNIE TUNISIENNE**  
**DE FORAGE**  
**19 RUE DE L'ARTISANAT 2035**  
**CHARGUIA II ARIANA – L'AEROPROT**  
**TUNIS - TUNISIA**

**PRO-FORMA INVOICE N° :** .....

**DATE :** .....

ITEM	QTY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
		Detailed description of the EQUIPMENT		
TOTAL MATERIAL VALUE EX-WORKS				.....
CHARGES( PACKING, HANDLING , ETC ...)				.....
TOTAL Ex-WORKS				

- **MANUFACTURER NAME OF EACH ITEM: ANY MANUFACTURER WILL BE ACCEPTED**
- **COUNTRY OF ORIGIN :** .....
- **COUNTRY OF EMBARKATION :** .....
- **ESTIMATED NET AND GROSS WEIGHT :** .....
- **DELIVERY FROM DATE OF ORDER ACKNOWLEDGEMENT : Preferably 02 to 03 weeks.**
- **TERMS OF PAYMENT : NET 30 DAYS/ CASH AGAINST DOCUMENT**
- **VALIDITY OF BID ( TO BE NOT LESS THAN 90 DAYS FROM BID CLOSING DATE ) :** .....
- **GENERAL TERMS AND CONDITIONS :** .....

#### AUTHORIZED SIGNATURE

**NAME :** .....

**SIGNATURE :** .....

**TITLE :** .....

**DATE :** .....

**COMPANY STAMP :**

## ***ATTACHMENT D***

### ***MAIN TERMS AND CONDITIONS***

## **ATTACHMENT D**

### **MAIN TERMS AND CONDITIONS**

*A Purchase Order will be issued to the successful bidders based on the following main terms and conditions*

**1/ Purchase Order Prices**

*Purchase Order prices are inclusive of all rights, duties and taxes applicable outside Tunisia and related to the supply of Each lot including all costs related to packing, handling, shipping and delivery .*

**2/ Prices validity :**

*The prices of the Purchase Order, shall remain firm throughout delivery and not subject to any revision.*

**3/ Payment:**

*Payment will be made by wire transfer to the supplier's designated Bank account no later than 30 days from date of receipt of invoice.*

**4/ Payment of subcontractors:**

*Subcontractors are paid directly by the supplier; CTF will not assume any liability in case supplier does not pay his subcontractors.*

**5/ Conformity:**

*The SPARE PARTS shall be in conformity with the technical specifications set forth in attachment A and in supplier's quote.*

*CTF reserves the right to call on experts or technicians of it's choice to examine, control and test the SPARE PARTS in view of their acceptance.*

*In the event SPARE PARTS turn out not to be in conformity , expert fees will be at supplier's cost even in case of replacement of the rejected SPARE PARTS .*

*Accordingly supplier will not be entitled to make any claim of what ever nature as a result of incurring above costs.*

**6/ Delivery:**

*Delivery will be as stated in supplier's bid and the resulting Purchase Order.*

*Such delivery shall be respected and no delays will be allowed except as provided under article 10 (Force Majeure).*

**7/ Packing and Transport:**

**7-1 Packing and marking:**

➤ **Packing:**

*Supplier shall pack the SPARE PARTS adequately in such a manner as to prevent any damages during transport from ex-works .*

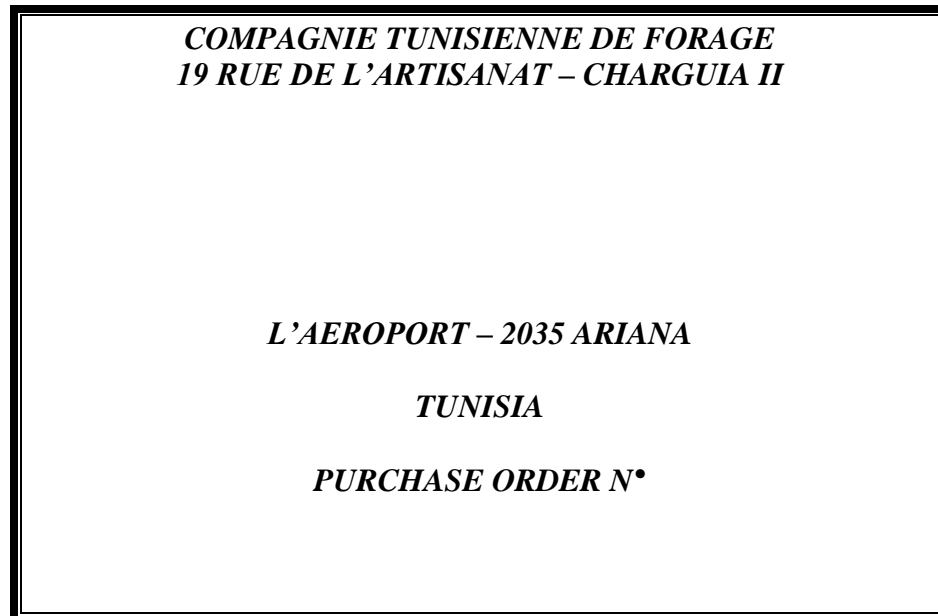
*Packing shall be adequate to provide good conservation during handling, bad weather etc... supplier shall bear the full responsibility for damages resulting from improper packing of material.*

*The packaging must be only in cardboard or in wood boxes instead of plastic packing otherwise penalties will be applied*



➤ **Marking**

*Each parcel shall be clearly marked to mention the following:*



*Packing shall be marked to show the following informations:*

- *Supplier's name and address.*
- *Parcel number in X/N form (the numerator will indicate the sequential number of the parcel and de denominator the total number of parcels).*
- *Gross weight of each parcel.*
- *Dimension of each parcel in form L x W x H (length x width x height)*
- *Special marking as required for specific material such as fragile , Top , Bottom etc....*

**7-2 Insurance coverage :**

*CTF will be responsible for insurance coverage of the risks involved in transport of the SPARE PARTS from port of loading or F.O.T (if delivery by truck) to port of unloading in accordance with the provision of incoterms 2000 or latest edition of ICC*

*However supplier shall be responsible for packing, handling and loading of the SPARE PARTS on the vessel or truck.*

**8/ Loss, Damages, Rejected Material**

**8.1 Loss, damages:**

*Supplier is required to replace as soon as possible at his costs and expenses (including all costs involved from ex-works to CTF designated delivery site) any missing items or non conformity of part or the totality of the items*

*All expenses, fees and taxes of what ever nature and – notwithstanding their amounts- incurred in making such replacements as provided in this article will be at supplier's cost.*

**8.2 Rejected material**

*Any material rejected by CTF shall be replaced by supplier at his sole cost and expenses and without compensation, as soon as possible but no later than Seven (07) days from date of rejection notification.*

**9/ Guarantee:**

*Supplier shall guarantee the SPARE PARTS against any hidden defect, fabrication or materials defects for a period of 12 months from date of first usage or 18 months from shipping date (as stated in the bill of lading or CMR whichever comes first).*

*This guarantee shall also cover any and all costs related to travel of personnel, packing and shipment incurred when replacing or repairing defective material weather at a designated location or at CTF Base.*

*During the guarantee period, supplier shall make any repairs requested by CTF. However, he can request to be reimbursed in case he determines that such repairs are not covered by the guarantee or are due to CTF improper usage or handling of the SPARE PARTS*

#### **10/ Force Majeure**

*Neither party will be considered as failing to meet it's contractual obligations in case such failure is delayed, hindered or prevented by a case of force majeure .*

*Force majeure is defined as any unpredictable, irresistible event beyond the concerned party control which prevents him from meeting part or all of his obligations setforth in the present contract.*

*Strikes of supplier's personnel will not be considered as case of force majeure.*

*In the event delivery of the SPARE PARTS complete with accessories will be partially or totally hampered due to a case of force majeure, supplier shall advise CTF within **Three (03) days** by formal notification of the commencement and end of force majeure as well as the likely consequences on the fulfillment of this contractual obligation.*

*He shall also provide CTF with credible evidence of the existence and duration of the case of force majeure. CTF reserves the right to evaluate the reasons hampering the fulfillment of supplier's contractual obligations and to decide whether they are among force majeure cases or not.*

*Time required to fulfill supplier's contractual obligations will be extended by the number of days required to overcome the force majeure case. Should the force majeure case exceeds **Ten (10) days**; CTF reserves the right to cancel the Purchase Order by written notice (fax or e-mail).*

#### **11/ Disputes And Conflicts**

*Any disputes related to the interpretation or the execution of the present contract –unless settled amicably by the parties- shall be settled by the competent Tunisian court.*

# Brooks® Models MT 3809 and 3819

## Metal Tube Variable Area Flowmeters



*Models MT 3809 and 3819*

## Models MT 3809 & 3819

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### DESIGN FEATURES

- Broad range of flow capacities
  - Accuracy class 1.6 acc. VDE/VDI 3513
  - Versatile construction for all gas, liquid, steam applications
  - Operable under high temperatures and pressures
  - Flanged, female and male NPT connections
  - Optional 4-20 mA and HART® programmable microprocessor transmitter (SMM) with or without alarms and pulse output for totalization
  - Optional transmitter 4-20 mA only (M420)
  - Electronics designed with either Intrinsically safe, Non Incendive or Explosion proof constructions:
    - Ⓔ II 2 G and II 2 GD EEx ia IIC T4 or T6 (IP67)
    - Ⓔ II 3 G and II 2 D EEx nA II T4 or T6 (IP67)
    - Ⓔ II 2 GD EEx d IIB T4 (IP65)
- Designs comply also with the Pressure Equipment Directive (PED) 97/23/EC. For North America cUL and cCSAus certified.
- The 3800 series flowmeters comply with ATEX directive 94/9EC annex VIII, clause 3.

### OPTIONAL ACCESSORIES

Needle control valves and flow controllers (available on the MT 3809 only).

For flow rate control, needle control valves or flow controllers may be externally piped into the inlet or outlet side of the instrument. Needle control valves and flow controllers can be supplied up to size 10 (1") maximum 1700 l/hr (7,5 gpm) water equivalent. Sight flow indicators are available for all flanged meters and up to size 13 (2") NPT meters.

### DESCRIPTION

The Brooks models MT 3809 and MT 3819 variable area flowmeters are rugged, all metal flowmeters offering class 1.6 accuracy. The MT 3809 is constructed with stainless steel components for measuring a variety of gas, liquid and steam applications while the model MT 3819 utilizes a E/TFE lining for aggressive liquid and gas applications.

Flow rate indication is provided by means of magnetic coupling where a magnet, encapsulated in the float, is coupled to a rotatable magnet located in the rear of the indicator, thus turning the dial indicator mounted on the meter.

Optional accessories available include 4-20 mA output with HART microprocessor transmitter with or without configurable alarms and pulse output for totalization.

The microprocessor electronics are based on the proprietary Smart Meter Manager (SMM) technology utilized as the basis for an array of Brooks products. Also available are front adjustable inductive alarms, high temperature or stainless steel indicator housings, valves, flow controllers, steam jacket and material certifications.

### OPTIONAL ELECTRONIC EQUIPMENT

Electronic equipment available with the models MT 3809 and MT 3819 include the SMM transmitter, SMM transmitter/alarm/pulse output for totalization, inductive alarms and SMM transmitter with inductive alarms, refer to pages 6 through 12 for additional information. All models are designed to be either intrinsically safe (aluminium or stainless steel housing) or explosion proof (aluminium housing only). All electronic accessories, except the explosion proof execution options are available for high temperature applications. Refer to table 3 to determine the appropriate model for your application.

## Data Sheet

DS-VA-MT3809-3819-eng-eu

April, 2008

## Models MT 3809 & 3819

### SPECIFICATIONS METER

<b>Instrument type</b>	<b>MT 3809/3819</b>
<b>Measuring range</b>	
Water at 20 °C	25 - 100.000 l/h
Air at 1,013 bar abs., 20 °C	0,78 - 1.404 m³/h
Select measuring range from:	flow table 1A and 1B on page 4
<b>Rangeability</b>	10 : 1
<b>Accuracy class to VDE/VDI 3513</b>	1.6
<b>Repeatability</b>	0,25% full scale
<b>Metering tube</b>	
• MT 3809 standard	316/316L SS, WNR 1.4401/1.4404 (dual certified)
• MT 3809 optional	Alloy 625, Hastelloy C tm, Titanium Gr. II
• MT 3819 standard	316L SS / 316 SS (dual certified) with E/TFE lining
<b>Scales</b>	
• Standard	Detachable aluminium plate (single or dual scales)
• Inscriptions	Choice of direct reading units or percentage of maximum flow
<b>Flanges and end fittings</b>	
• MT 3809 standard	316/316L SS, WNR 1.4401/1.4404 (dual certified)
• MT 3809 optional	Alloy 625, Hastelloy C tm, Titanium Gr. II
• MT 3819 standard	316L SS / 316 SS with E/TFE lining, PVDF inserts
<b>Connections</b>	
• MT 3809 standard	- flanges to DIN2527/2635 - flanges to ANSI B16.5 - welding neck flanges - threaded connection - threaded connection
• MT 3819 standard	- flanges to DIN2527/2635 - flanges to ANSI B16.5
• Standard flange finish	
<b>Floats</b>	
• MT 3809 standard	316L stainless steel
• MT 3809 optional	Alloy 625, Hastelloy C tm, Titanium Gr. II
• MT 3819 standard	- Size 7 and 8 - Size 10, 12 and 13
• MT 3819 optional	
<b>O-rings (NPT-female design only)</b>	
• MT 3809 standard	Viton
• MT 3809 optional	PTFE
• MT 3819	None
<b>Protection category to DIN 40050/IEC 144</b>	IP67 or NEMA 4x (IP65 for EExd)
<b>Indicator housing and cover</b>	
• MT 3809 and MT 3819 standard housing	Die cast aluminium (Alloy 380), standard or epoxy paint with glass window.
• MT 3809 and MT 3819 optional housing	316 stainless steel (gritblast finished) and glass window.
<b>Maximum fluid temperature</b>	Refer to table 3 on page 5
<b>Meter dimensions</b>	Refer to figure 3 on page 11
<b>Model code</b>	Refer to pages 12-15
<b>Pressure Equipment Directive (PED) 97/23/EC</b>	Flow meter complies under Sound Engineering Practices (SEP), or categories I, II or III.
<b>ATEX for construction</b>	The 3800 series flow meters comply with EN 13463 part 4, December 2001 (inherent safety) refer the ATEX directive 94/9EC annex VIII, clause 3.

## Models MT 3809 & 3819

Table 1A - Model MT 3809 Capacities

SIZE	CONNECTION SIZE		FLOAT CODE	FLOAT MATERIAL STAINLESS STEEL 316L SS							P.E.D.
	DIN	ANSI		WATER		AIR <sup>1) 2)</sup>		Press. Drop mbar	Viscosity Imm. Ceiling (cSt) <sup>3)</sup>	Max. Viscosity (cSt) <sup>3)</sup>	Category
	DN mm	inches		l/h	gpm	m <sup>3</sup> /h	scfm				
7	15	½"	A	25	0,11	0,8	0,5	30	1	40	S.E.P.
			B *	65	0,29	2,0	1,3	30	1	20	
			C	135	0,59	3,8	2,4	35	1	120	
			D *	200	0,88	5,9	3,7	45	1	20	
8	15	½"	A	250	1,1	8,3	5,3	55	2	250	
			B	400	1,7	12,2	7,7	60	1	180	
			C	650	2,8	18,6	11,8	130	2	600	
			D	1.000	4,4	33,8	21,4	60	1,5	250	
10	25	1"	A	1.200	5,3	31	19,4	70	5	600	Category I, II, or III
			B	1.500	6,6	50	31,6	85	1,5	400	
			C	2.400	10,5	66	41,7	155	7	800	
			D	3.500	15,4	95	60,1	50	4	500	
12	40	1½"	A	4.000	17,6	106	67	60	50	800	
			B	6.000	26,4	150	95	150	30	800	
			C	8.000	35,2	239	151	300	2	500	
			D	10.500	46,2	335	212	50	2	500	
13	50	2"	A	6.500	29	162	102	60	50	800	
			B	9.500	42	255	161	100	50	800	
			C	12.500	55	319	202	300	2,5	500	
			D	20.000	88	620	392	110	1	500	
15	80	3"	A	20.000	88	620	392	140	8	600	
			B	30.000	132	870	550	280	7	550	
			C	40.000	176	1.186	750	160	5	500	
16	100	4"	A	50.000	220	N/A for gas service		210	15	600	
			B	70.000	308			300	10	550	
			C	100.000	440				5	500	

- Notes: 1) Air flows in scfm converted to 70°F and 14,7 psia when the meter is operated at 68°F and 14,7 psia  
2) Air flows in m<sup>3</sup>/h (converted to normal conditions: 0°C and 1,013 bar abs.) when the meter is operated at 1,013 bar abs. and 20 °C  
3) Viscosity ceilings are based within 2% of max. flow water (for sizing between these limits contact factory)  
4) All meters have a 10:1 turndown  
5) N/A=Not applicable  
6) \* Minimum operating press required 7 PSI 0,48 bar

Table 1B - Model MT 3819 E/TFE Lined Capacities

METER SIZE	CONNECTION SIZE		FLOAT CODE	STANDARD FLOAT MATERIAL CAPACITIES (See Note 3)					P.E.D.
	DIN	ANSI		WATER		AIR <sup>1) 2) 4)</sup>		Press. Drop mbar	Category
	DN mm	inches		l/h	gpm	m <sup>3</sup> /h	scfm		
7	15	½"	A	110	0,48	3,2	2,0	25	S.E.P.
			B	170	0,75	5,0	3,2	50	
8	15	½"	A	250	1,10	7,3	4,6	30	
			B	420	1,85	12,2	7,7	45	
			C	500	2,20	14,5	9,2	40	
			D	850	3,74	24,6	15,6	130	
10	25	1"	A	1400	6,2	41	26	45	Category I, II, or III
			B	2000	8,8	58	37	106	
			C	2400	10,6	70	44	90	
			D	3000	13,2	87	55	130	
12	40	1½"	A	3000	13	87	55	50	
			B	4000	18	116	74	75	
			C	5000	22	145	92	85	
			D	6000	26	174	110	120	
13	50	2"	A	6000	26	174	110	95	
			B	8000	35	232	147	125	
			C	12000	53	348	221	200	
			D	15000	66	435	276	225	

- Notes: 1) For gas application operating pressure must be above 2 bar (a).  
2) Air flows in m<sup>3</sup>/h (converted to normal conditions: 0°C and 1,013 bar abs.) when the meter is operated at 1,013 bar abs. and 20 °C  
3) Sizes 7 & 8 floats are Hastelloy C, Sizes 10, 12 & 13 are PVDF  
4) Air flows in scfm converted to 70°F and 14,7 psia when the meter is operated at 68°F and 14,7 psia

## Data Sheet

DS-VA-MT3809-3819-eng-eu

April, 2008

## Models MT 3809 & 3819

Table 2 - Model MT 3809 Pressure Ratings

Flange Rating	316 Stainless Steel (bar at indicated temperature)			
	21 °C	93 °C	204 °C	315 °C
150 lb.	19	16,5	13,4	9,7
300 lb.	49,5	43	35,5	31
600 lb.	99	86	70,7	62,1
DIN PN40	40	38	31	27

Threaded NPT female	316 Stainless Steel (bar at indicated temperature)		
	21 °C	93 °C	204 °C
7 & 8	173	150	124
10	156	135	112
12	131	113	94

Threaded NPT male	316 Stainless Steel (bar at indicated temperature)			
	21 °C	93 °C	204 °C	315 °C
7 & 8	325	281	232	205
10	235	203	168	148
12	232	201	166	146

Table 3 - Minimum and Maximum Fluid Temperatures at 40 °C Ambient

size	Indicator only		Indicator with alarm <sup>1)</sup>		Indicator with transmitter <sup>1) 2)</sup>	
	standard	heatshield	standard	heatshield	standard	heatshield
<b>MT 3809</b>						
7 & 8	-50° thru 215°	325°	-30° thru 160°	230°	-30° thru 90°	150°
10	-50° thru 215°	325°	-30° thru 160°	325°	-30° thru 90°	200°
12	-50° thru 215°	325°	-30° thru 160°	325°	-30° thru 90°	200°
13	-50° thru 215°	325°	-30° thru 160°	325°	-30° thru 90°	200°
15	-50° thru 215°	325°	-30° thru 160°	325°	-30° thru 90°	200°
16	-50° thru 215°	325°	-30° thru 160°	325°	-30° thru 90°	200°
<b>MT 3819</b>						
All	-30 thru 150°	150°	-30 thru 150°	150°	-30 thru 90°	150°

Note 1) High Temperature execution not available in EEx d

Note 2) For both, SMM and M420 transmitter

### Minimum/Maximum Ambient Temperature in °C

Meter	Indicator only	Inductive alarm and or transmitter <sup>1)</sup> for both Eexi and Eexd execution
MT3809	-50 thru 65°	-30 thru 65°
MT3819	-50 thru 65°	-30 thru 65°

Note 1) For both, SMM and M420 transmitter

## Models MT 3809 & 3819

Table 4 - Meter & Connection Size

METER SIZE	CODE	FLANGED		THREADED NPT-F or NPT-M			
		CONNECTION	LENGTH	CONNECTION	LENGTH	CONNECTION	LENGTH
7	1	½" FLANGED	250 mm	½" FEMALE	225 mm	1" MALE	200 mm
8	2	½" FLANGED	250 mm	½" FEMALE	225 mm	1" MALE	200 mm
10	3	1" FLANGED	250 mm	1" FEMALE	300 mm	1½" MALE	250 mm
12	4	1½" FLANGED	250 mm	1½" FEMALE	300 mm	2½" MALE	250 mm
13	5	2" FLANGED	250 mm	--	--	--	--
15	6	3" FLANGED	250 mm	--	--	--	--
16	7	4" FLANGED	350 mm	--	--	--	--
<b>OVERSIZED</b>							
7	A	1" FLANGED	250 mm	--	--	--	--
8	B	1" FLANGED	250 mm	--	--	--	--
10	C	1½" FLANGED	250 mm	--	--	--	--
12	D	2" FLANGED	250 mm	--	--	--	--
13	E	3" FLANGED	250 mm	--	--	--	--
15	F	4" FLANGED	250 mm	--	--	--	--

Table 5 - Connection Type

CODE	CONNECTION TYPE
1	NPT-female with Viton O-rings
2	NPT-female with Teflon O-rings
3	NPT-male no O-rings oversized
4 *	Rc-female (ISO R7, JIS B0203) with Viton O-Rings
5 *	Rc-female (ISO R7, JIS B0203) with Teflon O-Rings
6 *	R-male (ISO R7, JIS B0203) no O-Rings oversized

CODE	CONNECTION TYPE
A	ANSI 150# RF
B	ANSI 300# RF
C	ANSI 600# RF (not for oversized)
D	DIN PN40 RF

Note: \* Rc-female is interchangeable with British Standard Pipe threads (BSPT)

Table 6 - Accessories Series 3809

CODE	DESCRIPTION	MAX. FLOW AT WATER EQUIVALENT
A	None	
B	High temperature design	
D	8802 Flow controller	= 88 l/h
E	8805 Flow controller	
F	8902 Flow controller	
G	8905 Flow controller	
H	8812 Flow controller	= 570 l/h
J	8815 Flow controller	
K	8912 Flow controller	
L	8915 Flow controller	
M	8830 Flow controller	= 1.820 l/h
N	¼" valve on inlet	= 260 l/h *
P	¼" valve on outlet	
Q	½" valve on inlet	= 1000 l/h *
R	½" valve on outlet	
S	1" valve on inlet	= 3.500 l/h *
T	1" valve on outlet	
W	1½" valve on inlet	= 10.500 l/h *
X	1½" valve on outlet	

Note : Valves and flow controllers not with male connection

Note \* : Max. T 210°C (Optional Temperature: Consult Factory)



## OPTIONAL ELECTRONIC EQUIPMENT

### SMM TRANSMITTER WITH OR WITHOUT ALARMS AND PULSE OUTPUT

#### DESIGN FEATURES

- A 2-wire, loop-powered device for ease of wiring and installation
- 4-20 mA analog output for flowrate, with Bell-202 modulated HART communication channel
- User selectable 0% and 100% analog output ranges with optional smoothing
- Flexible (mix & match) units of measure for flowrates, totals, temperatures, densities, etc.
- Two flow totalizers: resetable and inventory totalization
- User configurable, scaleable pulse out put for various engineering units
- Comprehensive alarms for both process flow and internal diagnostic checks
- Easily configured and compatible with other plant equipment
- Unique magnetic pick-up sensor

"Smart Inside" best defines the Brooks transmitter with optional alarms and pulse output for totalization. The transmitter (with or without the alarms and pulse output) is a compact microprocessor device designed to interface directly with the models MT 3809 and MT 3819 flowmeters. The microprocessor electronics are based on the Brooks Smart Meter Manager (SMM™) technology common to other Brooks flowmeters. The SMM transmitter is HART-programmable for numerous variables such as flow rate, totalization, calibration factors, and high-low alarm parameters. It is programmable with easy-to-use hand held configurators such as the HART communicator. Prior to shipment, commonly used default values are

programmed by Brooks to ensure ease of operation and quick startup. However, parameters can be reprogrammed by the user if needed. The 2-wire electronics system is easy to install and interface with other existing equipment, such as process management systems or maintenance control packages, refer to figure 1.

In operation the SMM transmitter converts the measured process flow rate into a 4-20 mA output with HART communication data. The float is constructed with an integral magnet that activates a patented magnetic sensor that is part of the transmitter. This same float magnet also drives the mechanical pointer. Flow rate information may be viewed locally at the meter scale or displayed remotely (along with other flow data) as a function of external support systems through analog/pulse outputs or multiple digital communications.

In addition to transmitter features, this unit can also be ordered with optional alarms and pulse output provided by open collector switches. One or two alarms may be programmed prior to shipment of the unit or at the customer site with a hand-held communicator.

#### TRANSMITTER ACCESSORIES

General purpose and intrinsically safe HART compatible power supplies are available in 24Vdc, 110Vac and 220Vac.

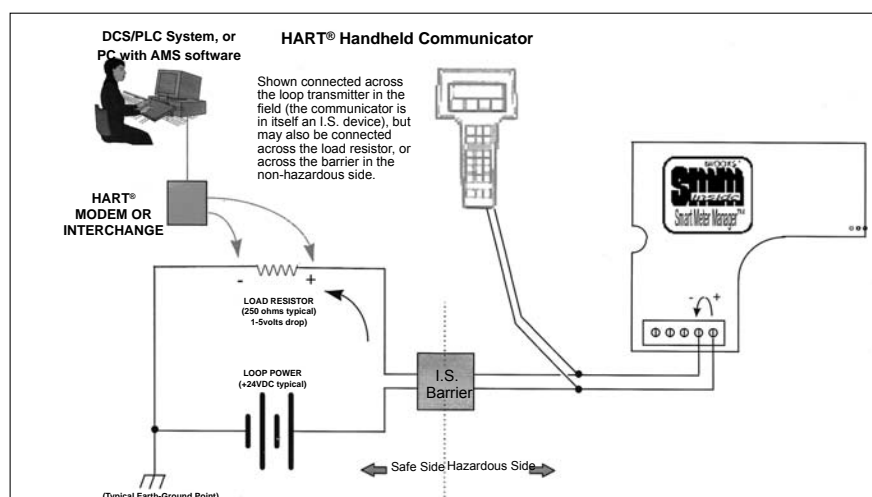





Figure 1 Typical SMM transmitter analog output and power wiring

## Models MT 3809 & 3819

### SPECIFICATIONS TRANSMITTER

Transmitter type	SMM Transmitter with or without alarm and pulse output
<b>Electrical classification</b>	
<b>Certified</b>	<p>CE Mark; EMC Directive 89/336/EEC</p> <p><u>Ex ia</u> Intrinsically Safe KEMA 01ATEX1235X II 2 G EEx ia IIC T4 IP 67 II 2 D T135C</p> <p></p> <p><u>Ex nA</u> Non Incendive KEMA 01ATEX1236 II 3 G EEx nA II T4 IP 67 II 2 D T135C</p> <p></p> <p><u>Ex d</u> Flame-proof / Explosion-proof KEMA 01ATEX2207X II 2 G EEx d II B T4 IP 65 II 2 D T135C</p> <p></p> <p>UL/cUL listed Intrinsically Safe Division 1, Class I, II and III, Groups A, B, C, D, E, F, G for all enclosure options. Enclosure 4X.</p> <p>UL/cUL listed - non - incendive Division 2, Class I, II and III, Groups A, B, C, D, E, F, G for all enclosure options. Enclosure 4X.</p> <p>UL/cUL listed Hazardous locations, explosion proof Class I, Division 1, Groups C, D, Class II, Division 1, Groups E, F, G; Class III. Enclosure 4X, for optional explosion proof housing.</p>
<b>Power supply</b>	21 to 30 Vdc: (2-wire current loop transmitter)
<b>Transmitter</b>	4-20 mA analog output with HART data. Update rate: 4 times per sec. Range: 3,8 to 22,0 mA.
<b>Two alarm outputs (open collector)</b>	<p>Optically isolated outputs assignable to alarms.</p> <ul style="list-style-type: none"> <li>• Max. off-state voltage: 30 Vdc</li> <li>• Max. off-state current: 0,05 mA</li> <li>• Max. on-state voltage: 1,2 Vdc</li> <li>• Max. on-state current: 20 mA</li> </ul>
<b>One pulse output (open collector)</b>	<p>Optically isolated. Scaleable to a variety of engineering unit systems (pulses per liter, gallons, etc.).</p> <ul style="list-style-type: none"> <li>• Range: 1 Hz to 1 kHz</li> <li>• Max. off-state voltage: 30 Vdc</li> <li>• Max. off-state current: 0,05 mA</li> <li>• Max. on-state voltage: 1,2 Vdc</li> <li>• Max. on-state current: 20 mA</li> </ul>
<b>Temperature specification</b>	See table 3
<b>Electrical connector</b>	M20 x 1,5 according to ISO (1/2" NPT (F) or cable gland 8-12 mm optional)
<b>Linearity</b>	Less than 1% at max. current.
<b>Temperature influence</b>	Less than 0,04% per °C.
<b>Voltage influence</b>	Less than 0,002% / Vdc.
<b>Load resistance influence</b>	± 0,1% full scale.

## OPTIONAL ELECTRONIC EQUIPMENT INDUCTIVE ALARM SWITCHES

### DESIGN FEATURES

- 1 or 2 normally open inductive sleeve initiators
- Optional intrinsically safe power supply/amplifier/ relay unit
- For low or high limit signalling/switching
- Front adjustable




One or two electronic limit switches can be installed in the indicator housing to allow initiation of signalling or switching functions on a preset flow value. The limit switch operates as a slot initiator that is inductively actuated by a disc mounted on the pointer shaft. Any flow value can be used for setting the limit value by

40% of full scale. The position of the initiator also serves to visually indicate the set value. Settings can be adjusted by removing the indicator cover, loosening, moving and retightening of the alarm indication needle, and replacement of the indicator cover.

### Alarm Accessories

Amplifier power supply (approved isolated barrier)  
1 or 2 channel approved for intrinsically safe application, remotely mounted, 110 or 220 Vac power. Single pole with double throw (SPDT) relay standard. For other configurations, consult factory.

### Specifications Alarm Switches

Alarm type	Inductive
Electrical classification	EMC Directive 89/336/EEC
Certified	<p> <u>Ex ia</u> Intrinsically Safe KEMA 01ATEX1235X II 2 G EEx ia IIC T6 IP 67 II 2 D T135C</p> <p> <u>Ex nA</u> Non Incendive KEMA 01ATEX1236 II 3 G EEx nA II T6 IP 67 II 2 D T135C</p> <p> <u>Ex d</u> Flame-proof / Explosion-proof KEMA 01ATEX2207X II 2 G EEx d II B T4 IP 65 II 2 D T135C</p> <p>UL\cUL listed Intrinsically Safe Division 1, Class I, II and III, Groups A, B, C, D, E, F, G For all enclosure options. Enclosure 4X.</p> <p>UL\cUL listed - non - incendive Division 2, Class I, II and III, Groups A, B, C, D, E, F, G For all enclosure options. Enclosure 4X.</p> <p>UL\cUL listed Hazardous locations, explosion proof Class 1, Division 1, Groups C, D, Class II, Division 1, Groups E, F, G; Class III Enclosure 4X, for optional explosion proof housing.</p>
Power supply	5 - 25 Vdc (8 Vdc nominal)
Impedance	- Approximately 1 kohm with cam absent - Approximately 8 kohm with cam present
Ambient and Operating temperature	See table 3
Electrical connector	M20 x 1,5 according to ISO (1/2" NPT (F) or cable gland 8-12 mm optional)

## Models MT 3809 & 3819

### Optional Electronic Equipment SMM Transmitter with Inductive Alarms

This combined system provides both the sophistication of the SMM transmitter along with the simplicity of one or two alarms. Specifications for the transmitter and the front adjustable inductive alarms are as stated previously. The combined system has the great advantage to have two indepent signalling systems (fail safe system).

#### Optional Cable Glands:

M20 x 1,5 threaded x 8-12 mm cord (brass or stainless steel).

EX d housing: Reducing adapter to 1/2" NPT and M20 x 1,5 Female are available.

### Optional Electronic Equipment Basic Analogue Transmitter M420

#### Transmitter 3809 and 3819

The transmitter provides accurate magnet angle detection and conversion to a 4-20 mA industry standard output signal, based on the position of a float assembly in the flowmeter. This rugged,

compact, microprocessor driven device is capable of providing accurate flow information to your external support systems. The patented magnetic sensor with automatic gain control enables an extremely high dynamic capture range without sacrificing accuracy.

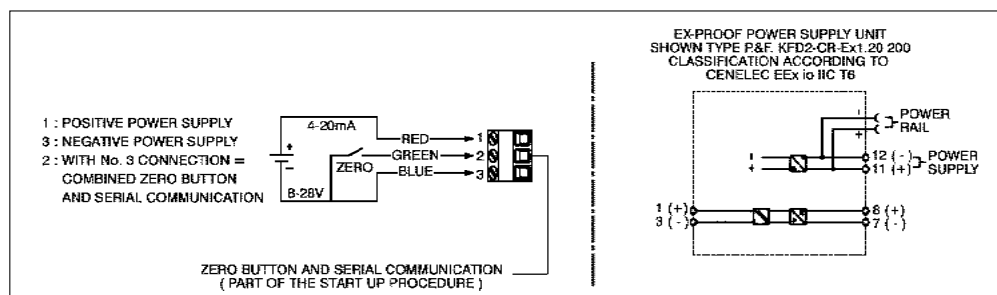


Figure 2 - Wiring Diagram

### Specifications Transmitters

Transmitter type	M420
Electrical Certification	E.M.C. Directive 89/336/EEL according to EN 61326 (1997)
Certified	<p><b>EEx ia Intrinsically Safe</b> KEMA 01ATEX1235X II 2 G EEx ia IIC T4 IP 67 II 2 D T70C</p> <p><b>EEx nA Non Incendive</b> KEMA 01ATEX1236 II 3 G EEx nA II T4 IP 67 II 2 D T70C</p> <p><b>CSA Approval</b> Class I, II, III Division I Groups A thru G Ex ia IIC T6; Class I, zone 0 and 1 Class I, II, III Division 2 Groups A thru G Ex nA IIC T6; Class I Zone 2</p>
Power supply	8 - 28 Vdc
Transmitter output	4 - 20 mA analog
Temp. spec.	See table 3
Electrical connector	M20 x 1,5 according to ISO or cable gland optional

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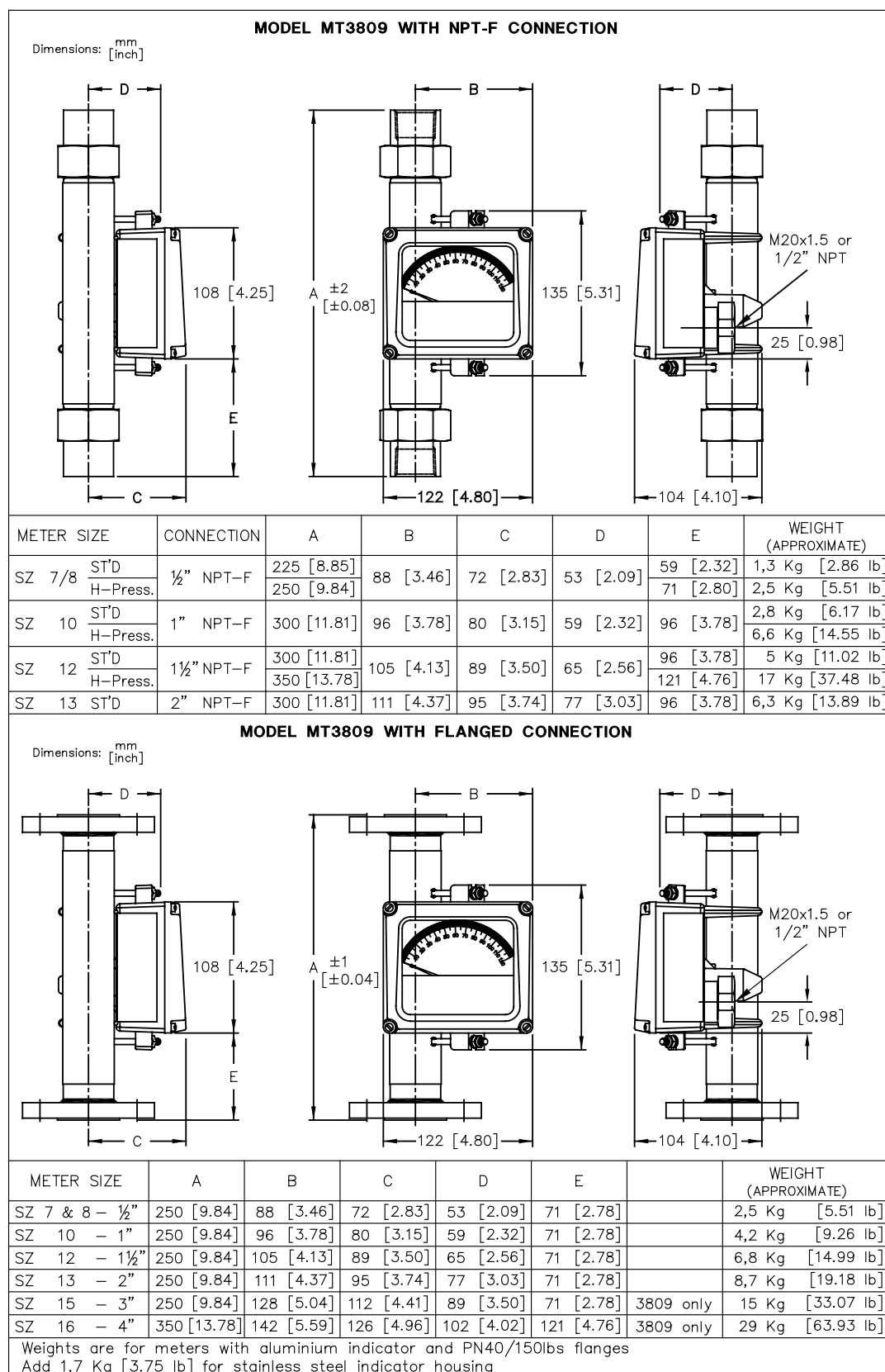


Figure 3 - Models MT 3809 and MT 3819 dimensions

## Models MT 3809 & 3819

### Model code MT 3809

MODEL NUMBER		DESCRIPTION				
3809/E		METAL TUBE FLOWMETER (VERTICAL INLET, VERTICAL OUTLET)				
		MATERIAL OF CONSTRUCTION				
1		316 L SS				
A		316 L SS WITH DIN 2.2 CERTIFICATION				
B		316 L SS WITH DIN 3.1.B CERTIFICATION				
		METER & CONNECTION SIZE				
X		TO BE SELECTED FROM TABLE 4				
		FLOAT (MAXIMUM FLOW WATER )				
x		TO BE SELECTED FROM TABLE 1A				
		CONNECTION TYPE				
X		TO BE SELECTED FROM TABLE 5				
			METER ACCURACY	SCALE INSCR.	FLUID	
A			1,6 VDI	% - SCALE	LIQUID	
B			1,6 VDI	DR - SCALE	LIQUID	
C			1,6 VDI	% - SCALE	GAS	
D			1,6 VDI	DR - SCALE	GAS	
E			1,6 VDI	% - SCALE	VISC. INFLUENCE	
F			1,6 VDI	DR - SCALE	VISC. INFLUENCE	
		INDICATOR CONFIGURATION				
			HOUSING	MATERIAL	FINISH	INDICATOR FUNCTION
A			"	ALUMINIUM	STANDARD	INDICATOR ONLY
B			"	"	"	INDUCTIVE ALARM, 1 SWITCH (P&F)
C			"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
D			"	"	"	μP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
E			"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
F			"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
X			"	"	"	μP M420 TRANSMITTER 4 - 20 mA
H			"	ALUMINIUM	EPOXY	INDICATOR ONLY
J			"	"	"	INDUCTIVE ALARM, 1 SWITCH (P&F)
K			"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
L			"	"	"	μP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
M			"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
N			"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
Y			"	"	"	μP M420 TRANSMITTER 4 - 20 mA
Q			"	ST. STL.	GRIT BLAST	INDICATOR ONLY
R			"	"	"	INDUCTIVE ALARM, 1 SWITCH (P&F)
S			"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
T			"	"	"	μP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
U			"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
V			"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
8			"	"	"	μP M420 TRANSMITTER 4 - 20 mA

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## Models MT 3809 & 3819

Model code MT 3809 (continued)

		HOUSING	MATERIAL	FINISH	INDICATOR FUNCTION					
1		Ex. PROOF	ALUMINIUM	EPOXY	INDUCTIVE ALARM, 1 SWITCH (P&F)					
2		"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)					
3		"	"	"	μP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE					
4		"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM					
5		"	"	"	μP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM					
		I.S. RELAY / POWER SUPPLY OPTIONS								
A		NONE								
B		I.S. POWER SUPPLY RELAY UNIT, 1 CHANNEL, 230 VAC (For inductive alarm only) (KFA6-SR2-Ex1-W)								
C		I.S. POWER SUPPLY RELAY UNIT, 2 CHANNEL, 230 VAC (For inductive alarm only) (KFA6-SR2-Ex2-W)								
D		I.S. POWER SUPPLY RELAY UNIT, 1 CHANNEL, 115 VAC (For inductive alarm only) (KFA5-SR2-Ex1-W)								
E		I.S. POWER SUPPLY RELAY UNIT, 2 CHANNEL, 115 VAC (For inductive alarm only) (KFA5-SR2-Ex2-W)								
F		GENERAL PURPOSE POWER SUPPLY, 24 VDC INPUT (For 4-20 mA x-mitter only) (811-11-B 00000)								
G		GENERAL PURPOSE POWER SUPPLY, 115 VAC INPUT (For 4-20 mA x-mitter only) (811-12-B 00000)								
H		GENERAL PURPOSE POWER SUPPLY, 230 VAC INPUT (For 4-20 mA x-mitter only) (811-12-B-00000)								
J		I.S. POWER SUPPLY UNIT, 24 VDC INPUT (For 4-20 mA/HART x-mitter only) (9303/15-22-11)								
K		I.S. POWER SUPPLY UNIT, 115 VAC INPUT (For 4-20 mA/HART x-mitter only) (244 1B-120 VAC)								
L		I.S. POWER SUPPLY UNIT, 230 VAC INPUT (For 4-20 mA/HART x-mitter only) (244 1B-240 VAC)								
		CERTIFICATIONS								
1		NONE								
E		ZONE 1, ATEX, EEx ia , (Intrinsically Safe), IP 67								
F		ZONE 2, ATEX, EEx nA (non Incendive), IP 67								
K		ZONE 1, ATEX, EEx d , (Flame proof / Explosion proof), IP 65								
L		UL / cUL or CSA APPROVAL (Intrinsically Safe, non Incendive, or, Explosion proof)								
		ACCESSORIES								
X		TO BE SELECTED FROM TABLE 6								
		SOFTWARE REVISION								
	1	NONE								
	A	INITIAL RELEASE (SMM ONLY)								
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	SELECT "Z" IF SPECIAL AND SPECIFY
3809 / E 1 1 D A B A A 1 D 1 = TYPICAL MODEL NUMBER										

## Models MT 3809 & 3819

### Model code MT 3819

MODEL NUMBER		DESCRIPTION			
3819/B		METAL TUBE FLOWMETER (VERTICAL INLET, VERTICAL OUTLET)			
		MATERIAL OF CONSTRUCTION			
1		316 L SS / E/TFE LINED			
A		316 L SS / E/TFE LINED WITH DIN 2.2 CERTIFICATION			
B		316 L SS / E/TFE LINED WITH DIN 3.1.B CERTIFICATION			
		METER & CONNECTION SIZE			
1		METER SIZE 7, 1/2" (DN15) FLANGED			
2		METER SIZE 8, 1/2" (DN15) FLANGED			
3		METER SIZE 10, 1" (DN25) FLANGED			
4		METER SIZE 12, 1½" (DN40) FLANGED			
5		METER SIZE 13, 2" (DN50) FLANGED			
		FLOAT (MAXIMUM FLOW WATER )			
X		TO BE SELECTED FROM TABLE 1B			
		CONNECTION TYPE			
A		ANSI 150 LBS RF			
B		ANSI 300 LBS RF			
D		DIN PN 40 RF			
			METER ACCURACY	SCALE INSCR.	FLUID
A		1,6 VDI	% - SCALE	LIQUID	
B		1,6 VDI	DR - SCALE	LIQUID	
E		1,6 VDI	% - SCALE	VISC. INFLUENCE	
F		1,6 VDI	DR - SCALE	VISC. INFLUENCE	
G		2.5 VDI	% - SCALE	LIQUID	
H		2.5 VDI	DR - SCALE	LIQUID	
L		2.5 VDI	% - SCALE	VISC. INFLUENCE	
M		2.5 VDI	DR - SCALE	VISC. INFLUENCE	
		INDICATOR CONFIGURATION			
		HOUSING	MATERIAL	FINISH	INDICATOR FUNCTION
A		STANDARD	ALUMINIUM	STANDARD	INDICATOR ONLY
B		"	"	"	INDUCTIVE ALARM, 1 SWITCH (P&F)
C		"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
D		"	"	"	µP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
E		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
F		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
X		"	"	"	µP M420 TRANSMITTER 4 - 20 mA
H		STANDARD	ALUMINIUM	EPOXY	INDICATOR ONLY
J		"	"	"	INDUCTIVE ALARM, 1 SWITCH (P&F)
K		"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
L		"	"	"	µP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
M		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
N		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
Y		"	"	"	µP M420 TRANSMITTER 4 - 20 mA



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## Models MT 3809 & 3819

Model code MT 3819 (continued)

		HOUSING	MATERIAL	FINISH	INDICATOR FUNCTION
Q		STANDARD	ST. STL.	GRIT BLAST	INDICATOR ONLY
R		"	"	"	INDUCTIVE ALARM, 1 SWITCH (P&F)
S		"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
T		"	"	"	µP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
U		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
V		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
8		"	"	"	µP M420 TRANSMITTER 4 - 20 mA
1		Ex. PROOF	ALUMINIUM	EPOXY	INDUCTIVE ALARM, 1 SWITCH (P&F)
2		"	"	"	INDUCTIVE ALARM, 2 SWITCHES (P&F)
3		"	"	"	µP SMM TRANSMITTER 4 - 20 mA / HART COMPATIBLE
4		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 1 ALARM
5		"	"	"	µP SMM TRANSMITT. 4 - 20 mA / HART COMP./ 2 ALARM
<b>I.S. RELAY / POWER SUPPLY OPTIONS</b>					
A		NONE			
B		I.S. POWER SUPPLY RELAY UNIT, 1 CHANNEL, 230 VAC (For use with inductive alarms only)			
C		I.S. POWER SUPPLY RELAY UNIT, 2 CHANNEL, 230 VAC (For use with inductive alarms only)			
D		I.S. POWER SUPPLY RELAY UNIT, 1 CHANNEL, 115 VAC (For use with inductive alarms only)			
E		I.S. POWER SUPPLY RELAY UNIT, 2 CHANNEL, 115 VAC (For use with inductive alarms only)			
F		GENERAL PURPOSE POWER SUPPLY, 24 VDC INPUT (For use with 4-20 mA transmitter only)			
G		GENERAL PURPOSE POWER SUPPLY, 115 VAC INPUT (For use with 4-20 mA transmitter only)			
H		GENERAL PURPOSE POWER SUPPLY, 230 VAC INPUT (For use with 4-20 mA transmitter only)			
J		I.S. POWER SUPPLY UNIT, 24 VDC INPUT (For use with 4-20 mA/HART transmitter only)			
K		I.S. POWER SUPPLY UNIT, 115 VAC INPUT (For use with 4-20 mA/HART transmitter only)			
L		I.S. POWER SUPPLY UNIT, 230 VAC INPUT (For use with 4-20 mA/HART transmitter only)			
<b>CERTIFICATIONS</b>					
1		NONE			
E		ZONE 1, ATEX, EEx ia , (Intrinsically Safe), IP 67			
F		ZONE 2, ATEX, EEx nA (non Incendive), IP 67			
K		ZONE 1, ATEX, EEx d , (Flame proof / Explosion proof), IP 65			
L		UL / cUL or CSA APPROVAL (Intrinsically Safe, non Incendive, or, Explosion proof)			
<b>ACCESSORIES</b>					
A		NONE			
B		HIGH TEMPERATURE DESIGN WITH PROTECTION SHIELD			
<b>SOFTWARE REVISION</b>					
1		NONE			
A		INITIAL RELEASE (SMM ONLY)			
Z Z Z Z Z Z Z Z Z Z		SELECT "Z" IF SPECIAL AND SPECIFY			
3819 / B 1 1 A A B A A 1 A 1 = TYPICAL MODEL NUMBER					

## Models MT 3809 & 3819

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### **BROOKS LOCAL AND WORLDWIDE SUPPORT**

Brooks is committed to assuring all of our customers receive the ideal flow solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration. The primary standard calibration equipment to calibrate our flow products is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

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Brooks Instrument can provide customer seminars and dedicated training to engineers, end users and maintenance persons. Please contact your nearest sales representative for more details.

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