



**NOTICE OF APPROVAL**

**AVIS D'APPROBATION**

Issued by statutory authority of the Minister of Industry for:

Émis en vertu du pouvoir statutaire du ministre de l'Industrie pour:

**TYPE OF DEVICE**

**TYPE D'APPAREIL**

Instrument Transformer: Voltage and Current

Transformateur de mesure: tension et courant

**APPLICANT / REQUÉRANT**

Trench Limited  
1865 Clements Road  
Pickering Ontario  
L1W 3R8

**MANUFACTURER / FABRICANT**

Trench Limited  
1865 Clements Road  
Pickering Ontario  
L1W 3R8

**MODEL(S) / MODÈLE(S)**

IVOKTA 245

**MANUFACTURER'S RATING / CLASSEMENT DU FABRICANT**

<b>Rated Current Ratio(s) / Rapport(s) de courant nominal(aux)</b>	See "Rated Current Ratio" is Section 1 Voir « Rapport nominal de courant » dans la Partie 1
<b>Rated Voltage Ratio(s) / Rapport(s) de tension nominal(aux)</b>	See "Rated Voltage Ratio" is Section 1 Voir « Rapport nominal de tension » dans la Partie 1
<b>Thermal Burden / Fardeau thermique</b>	See "Thermal Burden" is Section 1 Voir « Fardeau thermique » dans la Partie 1
<b>Frequency / Fréquence</b>	60 Hz
<b>Voltage Class / Catégorie de tension</b>	See "Voltage Class" is Section 1 Voir « Catégorie de tension » dans la Partie 1
<b>Lightning Impulse Level / Le niveau de tenue au choc de foudre</b>	1050 kV

**NOTE :** This approval applies only to meters, the design, composition, construction and performance of which are, in every material respect, identical to that described in the material submitted, and that are typified by samples submitted by the applicant for evaluation for approval in accordance with sections 13 and 14 of the *Electricity and Gas Inspection Regulations*. The following is a summary of the principal features only.

**REMARQUE :** Cette approbation ne vise que les compteurs dont la conception, la composition, la construction et le rendement sont identiques, en tout point, à ceux qui sont décrits dans la documentation reçue et pour lesquels des échantillons représentatifs ont été fournis par le requérant aux fins d'évaluation, conformément aux articles 13 et 14 du *Règlement sur l'inspection de l'électricité et du gaz*. Ce qui suit est une brève description de leurs principales caractéristiques.

**SECTION 1 – Ratings and Specifications**

**PARTIE 1 – Classements et caractéristiques**

<b>Approved Model Designations / Désignations de modèle approuvé</b>				
The model IVOKTA 245 is a combined voltage and current transformer. It is designed for outdoor use.				
Le modèle IVOKTA 245 est un transformateur de mesure combiné. Il est conçu pour une utilisation extérieur.				
<i>Transformers are approved for revenue metering only for the characteristics identified below:</i>				
<i>Les transformateurs sont approuvés aux fins de facturation seulement pour les caractéristiques indiquées ci-dessous:</i>				
<b>300/150 x 1200/600-5-5A 138000-115/69-115/69V</b>		<b>Thermal Burden / Fardeau thermique : 5000 VA</b>		
<b>Voltage Class / Catégorie de tension : 245 kV</b>				
<b>Rated Current Ratio / Rapport nominal de courant</b>	<b>Approved Primary and Secondary Current / Courant primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rating Factor / Facteur de surcharge</b>
Primary reconnect: 1 Turn. / Reconnection au primaire : 1 Tour.				
1200/600-5-5A	1200-5A	W <sub>1</sub> -W <sub>3</sub>	0.15B1.8	2.0
	600-5A	W <sub>2</sub> -W <sub>3</sub>	0.15B1.8	2.0
Primary reconnect: 4 Turns. / Reconnection au primaire : 4 Tours.				
300/150-5-5A	300-5A	X <sub>1</sub> -X <sub>3</sub>	0.15B1.8	4.0
	150-5A	X <sub>2</sub> -X <sub>3</sub>	0.15B1.8	4.0
<b>Rated Voltage Ratio / Rapport nominal de tension</b>	<b>Approved Primary and Secondary voltage / Tension primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rated Voltage Factor / Facteur de tension assigné</b>
138000-115/69-115/69V	138000-115V	Y <sub>1</sub> -Y <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73Un 60s
	138000-115V	Z <sub>1</sub> -Z <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73Un 60s

*Transformers are approved for revenue metering only for the characteristics identified below:*

*Les transformateurs sont approuvés aux fins de facturation seulement pour les caractéristiques indiquées ci-dessous:*

**400-5A 138000-115/69-115/69V**      **Thermal Burden / Fardeau thermique : 5000 VA**

**Voltage Class / Catégorie de tension : 245 kV**

<b>Rated Current Ratio / Rapport nominal de courant</b>	<b>Approved Primary and Secondary Current / Courant primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rating Factor / Facteur de surcharge</b>
400-5A	400-5A	X <sub>1</sub> -X <sub>2</sub>	0.15B1.8	4.0
<b>Rated Voltage Ratio / Rapport nominal de tension</b>	<b>Approved Primary and Secondary voltage / Tension primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rated Voltage Factor / Facteur de tension assigné</b>
138000-115/69- 115/69V	138000-115V	Y <sub>1</sub> -Y <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73U <sub>n</sub> 60s
	138000-115V	Z <sub>1</sub> -Z <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73U <sub>n</sub> 60s

**200-5A 138000-115/69-115/69V**      **Thermal Burden / Fardeau thermique : 5000 VA**


**Voltage Class / Catégorie de tension : 250 kV**

<b>Rated Current Ratio / Rapport nominal de courant</b>	<b>Approved Primary and Secondary Current / Courant primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rating Factor / Facteur de surcharge</b>
200-5A	200-5A	X <sub>1</sub> -X <sub>2</sub>	0.15B1.8	4.0
<b>Rated Voltage Ratio / Rapport nominal de tension</b>	<b>Approved Primary and Secondary voltage / Tension primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rated Voltage Factor / Facteur de tension assigné</b>
138000-115/69- 115/69V	138000-115V	Y <sub>1</sub> -Y <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73U <sub>n</sub> 60s
	138000-115V	Z <sub>1</sub> -Z <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73U <sub>n</sub> 60s

<b>200/150-5A 138000-115/69-115/69V</b>		<b>Thermal Burden / Fardeau thermique : 6000 VA</b>		
<b>Voltage Class / Catégorie de tension : 255 kV</b>				
<b>Rated Current Ratio / Rapport nominal de courant</b>	<b>Approved Primary and Secondary Current / Courant primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rating Factor / Facteur de surcharge</b>
200-5A	200-5A	X <sub>1</sub> -X <sub>3</sub>	0.15B1.8	4.0
150-5A	150-5A	X <sub>1</sub> -X <sub>2</sub>	0.15B0.9	4.0
<b>Rated Voltage Ratio / Rapport nominal de tension</b>	<b>Approved Primary and Secondary voltage / Tension primaire et secondaire approuvé</b>	<b>Approved Tap / Enroulement approuvé</b>	<b>Accuracy Class / Classe de précision</b>	<b>Rated Voltage Factor / Facteur de tension assigné</b>
138000-115/69- 115/69V	138000-115V	Y <sub>1</sub> -Y <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73Un 60s
	138000-115V	Z <sub>1</sub> -Z <sub>3</sub>	0.3WXYZ ZZ	1.1 Cont. 1.73Un 60s

**SECTION 2 – Nameplate and Photos**

**PARTIE 2 – Plaque signalétique et photos**



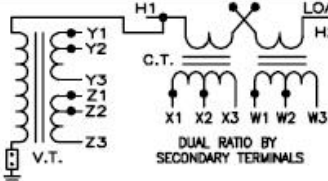
## TRENCH LIMITED

HERMETICALLY SEALED SINGLE-PHASE METERING UNIT  
 TYPE IVOKTA 245

MADE IN CANADA

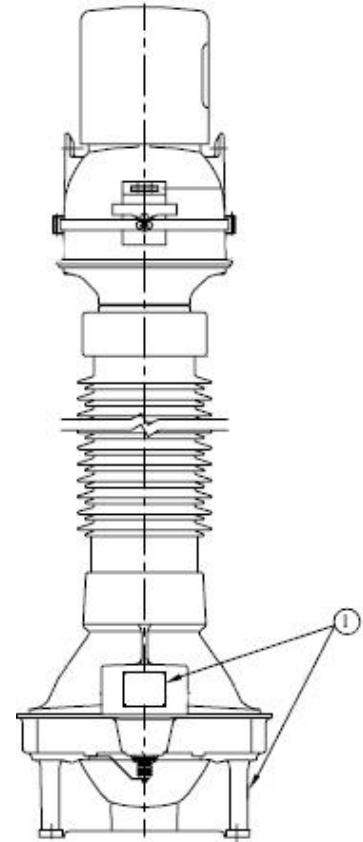
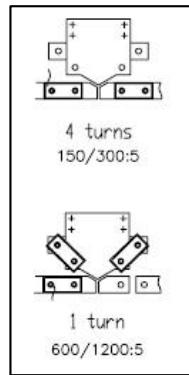
Um	245 kV	BIL	1050 kV	FREQUENCY	60 Hz
SER. NO.	**	BUILT	**	TOT. WT. lb.	2380 GAL. OIL 74
CURRENT		CHARACTERISTICS		VOLTAGE	
150/300x600/1200:5	A	RATIO		En	138000 V
In	300x1200	A	RATED PRI.	1200:1	115 V IC approved
	5	A	RATED SEC.	2000:1	69 V
0.15 %	B 1.8*	ACC. CLASS & BURDEN		0.3 %	WXYZ,ZZ
4 x 2 RF @ 30° C.		THERM. RATING @ 30° C.		5000 VA	
157.5kA	I Mech PEAK	RATED VOLTAGE FACTOR		1.1 Cont. & 1.73Un 60s	
63 kA	I Therm 1 SEC.	V.T. BURDENS REFER TO THE SUM OF THE BURDENS			
150:5	X2-X3	CT RATIO/TERM	SEC.V./TERM	69	Y2-Y3 & Z2-Z3
300:5	X1-X3	CT RATIO/TERM	SEC.V./TERM	115	Y1-Y3 & Z1-Z3
600:5	W2-W3	CT RATIO/TERM	STANDARD	IEEE C57.13, CSA C60044	
1200:5	W1-W3	CT RATIO/TERM	IC APPROVAL	**	

\* 0.15B1.8 FROM 5% OF RATED CURRENT TO RF x RATED CURRENT



**CAUTION:**  
 HIGH CREST VOLTAGES MAY OCCUR ACROSS C.T. SECONDARY TERMINALS WHEN OPEN-CIRCUITED. TO AVOID PERSONNEL INJURY, OR EQUIPMENT DAMAGE, THE SECONDARY MUST ALWAYS BE SHORT-CIRCUITED OR CONNECTED TO A BURDEN.

**NOTICE:**  
 THIS TRANSFORMER WAS FILLED WITH NON PCB MINERAL OIL THAT CONTAINED LESS THAN 1 PPM PCB AT THE TIME OF MANUFACTURE.



1: Nameplate positioning.  
 1: Emplacement de la plaque signalétique.

**TRENCH LIMITED** MADE IN CANADA

HERMETICALLY SEALED SINGLE-PHASE METERING UNIT  
 TYPE IVOKTA 245

Um	245 kV	BIL	1050 kV	FREQUENCY	60 Hz
SER. NO.	**	BUILT	**	TOT. WT. lb.	2380 GAL. OIL 74
CURRENT		CHARACTERISTICS		VOLTAGE	
400:5	A	RATED PRI.		En	138000
In	400	A	RATIO RATED SEC. VOLT. V	1200:1	115 IC approved
	5	A	RATIO RATED SEC. VOLT. V	2000:1	69
0.15 %	B 1.8*	ACC. CLASS & BURDEN		0.3 %	WXYZ, ZZ
4.0	RF @ 30° C.	THERM. RATING @ 30° C.		5000	VA
157.5	kA I Mech PEAK	V.T. BURDENS REFER TO THE SUM OF THE BURDENS ON ALL WINDINGS			
63	kA I Therm 1 SEC.				
400:5	X1-X2	CT RATIO/TERM	SEC.V./TERM	69	Y2-Y3 & Z2-Z3
STANDARD	IEEE C57.13		SEC.V./TERM	115	Y1-Y3 & Z1-Z3
IC APPROVAL	**		RATED VOLTAGE FACTOR	1.1 Cont. & 1.73Un 60s	
*0.15B1.8 FROM 5% TO 400% OF RATED CURRENT				IC approved	
*0.15B1.8 FROM 0.25% TO 400% OF RATED CURRENT				Manufacturer tested	

**CAUTION:**  
 HIGH CREST VOLTAGES MAY OCCUR ACROSS C.T. SECONDARY TERMINALS WHEN OPEN-CIRCUITED. TO AVOID PERSONNEL INJURY, OR EQUIPMENT DAMAGE, THE SECONDARY MUST ALWAYS BE SHORT-CIRCUITED OR CONNECTED TO A BURDEN.

**NOTICE:**  
 THIS TRANSFORMER WAS FILLED WITH NON PCB MINERAL OIL THAT CONTAINED LESS THAN 1 PPM PCB AT THE TIME OF MANUFACTURE.


**TRENCH LIMITED** MADE IN CANADA

HERMETICALLY SEALED SINGLE-PHASE METERING UNIT  
 TYPE IVOKTA 245

Um	250 kV	BIL	1050 kV	FREQUENCY	60 Hz
SER. NO.	*	BUILT	*	TOT. WT. lb.	2380 GAL. OIL 74
CURRENT		CHARACTERISTICS		VOLTAGE	
200:5	A	RATIO		2000/1200:1	
In	200	A	RATED PRI.	En	138000
	5	A	RATED SEC.	69/115	
0.15 %	B 1.8 **	ACC. CLASS & BURDEN		0.3 %	WXYZ, ZZ
4.0	RF @ 30° C.	THERM. RATING @ 30° C.		5000	VA
125	kA I Mech PEAK	V.T. BURDENS REFER TO THE SUM OF THE BURDENS ON ALL WINDINGS			
50	kA I Therm 1 SEC.				
200:5	X1-X2	CT RATIO/TERM	SEC.V./TERM	69	Y2-Y3 & Z2-Z3
STANDARD	CSA 60044-1		SEC.V./TERM	115	Y1-Y3 & Z1-Z3
IC APPROVAL			RATED VOLTAGE FACTOR	1.1 Cont., 1.73Un 60s	
** 0.15B1.8 FROM 5% TO 400% OF RATED CURRENT				IC APPROVED	
** 0.15B1.8 FROM 0.5% - 5% OF RATED CURRENT				MANUFACTURER TESTED	
** 0.3B1.8 FROM 0.25% - 0.5% OF RATED CURRENT					

**CAUTION:**  
 HIGH CREST VOLTAGES MAY OCCUR ACROSS C.T. SECONDARY TERMINALS WHEN OPEN-CIRCUITED. TO AVOID PERSONNEL INJURY, OR EQUIPMENT DAMAGE, THE SECONDARY MUST ALWAYS BE SHORT-CIRCUITED OR CONNECTED TO A BURDEN.

**NOTICE:**  
 THIS TRANSFORMER WAS FILLED WITH NON PCB MINERAL OIL THAT CONTAINED LESS THAN 1 PPM PCB AT THE TIME OF MANUFACTURE.

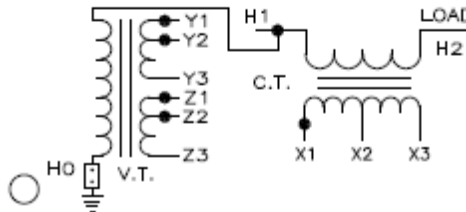


# TRENCH LIMITED

HERMETICALLY SEALED SINGLE-PHASE METERING UNIT  
 TYPE IVOKTA 245

MADE IN  
 CANADA

Um	255 kV	BIL	1050 kV	FREQUENCY	60 Hz	
SER. NO.	**	BUILT	**	TOT. WT. lb.	2380 GAL. OIL	74
CURRENT		CHARACTERISTICS		VOLTAGE		
150/200:5		A	RATED PRI.	En	138000	V
In	200	A	RATIO RATED SEC. VOLT. V	1200:1	115	IC approved
5		A	RATIO RATED SEC. VOLT. V	2000:1	69	
0.15 %	B 0.9/1.8*	ACC. CLASS & BURDEN		0.3 %	WXYZ,ZZ	
4.0	RF @ 30° C.	THERM. RATING @ 30° C.		6000 VA		
157.5	kA	I Mech PEAK		V.T. BURDENS REFER TO THE SUM OF THE BURDENS ON ALL WINDINGS		
63	kA	I Therm 1 SEC.				
150:5	X1-X2	CT RATIO/TERM	SEC.V./TERM	69	Y2-Y3 & Z2-Z3	
200:5	X1-X3		SEC.V./TERM	115	Y1-Y3 & Z1-Z3	
STANDARD	CSA 61869-1 & 4		OVER VOLTAGE FACTOR 1.1 CONT.-IC APPROVED			
IC APPROVAL			1.2 CONT. 1.73 Un 60s - TESTED			
* 0.15B0.9 ON 150:5A - IC APPROVED			0.3B0.9 FROM 1% TO 5% ON 150:5A - TESTED			
* 0.15B1.8 ON 200:5A - IC APPROVED			0.3B1.8 FROM 1% TO 5% ON 200:5A - TESTED			



**CAUTION:**  
 HIGH CREST VOLTAGES MAY OCCUR ACROSS C.T. SECONDARY TERMINALS WHEN OPEN-CIRCUITED. TO AVOID PERSONNEL INJURY, OR EQUIPMENT DAMAGE, THE SECONDARY MUST ALWAYS BE SHORT-CIRCUITED OR CONNECTED TO A BURDEN.

**NOTICE:**  
 THIS TRANSFORMER WAS FILLED WITH NON PCB MINERAL OIL THAT CONTAINED LESS THAN 1 PPM PCB AT THE TIME OF MANUFACTURE.

**SECTION 3 – Original and Revisions**

**PARTIE 3 – Originale et Révisions**

<b>Original / Originale</b>	<b>Issued Date / Date d'émission</b>	<b>Evaluator / Évaluateur</b>
	2018-06-21	National Research Council Reference / Référence: EPM-2018-0017A EPM-2018-0017B  Ray Kandalft Legal Metrologist / Métrologiste légal

<b>Revision / Révision</b>	<b>Issued Date / Date d'émission</b>	<b>Evaluator / Évaluateur</b>
1	2018-09-05	Ray Kandalft Legal Metrologist / Métrologiste légal
<b>Purpose of Revision</b>		<b>But de la Révision</b>
The ratios 300/150 x 1200/600-5-5A, 138000-115/69-115/69V have been added.		Les rapports 300/150 x 1200/600-5-5A, 138000-115/69-115/69V ont été ajoutés.

<b>Revision / Révision</b>	<b>Issued Date / Date d'émission</b>	<b>Evaluator / Évaluateur</b>
2	2019-08-02	Graeme Banks Senior Legal Metrologist / Métrologiste légal principal
<b>Purpose of Revision</b>		<b>But de la Révision</b>
The 200-5A ratio was approved.		Le rapport de 200-5A était approuvé.

<b>Revision / Révision</b>	<b>Issued Date / Date d'émission</b>	<b>Evaluator / Évaluateur</b>
3	2020-11-04	Ray Kandalft Senior Legal Metrologist / Métrologiste légal principal
<b>Purpose of Revision</b>		<b>But de la Révision</b>
The ratios 200/150-5A, 138000-115/69-115/69V have been added.		Les rapports 200/150-5A, 138000-115/69-115/69V ont été ajoutés.



## SECTION 4 – Approval

The design, composition, construction and performance of the meter type(s) identified herein have been evaluated in accordance with regulations and specifications established under the *Electricity and Gas Inspection Act*. Approval is hereby granted accordingly pursuant to subsection 9(4) of the said Act.

The sealing, markings, installation, use and manner of use of meters are subject to inspection in accordance with regulations and specifications established under the *Electricity and Gas Inspection Act*. The sealing and marking requirements are set forth in specifications established pursuant to section 18 of the *Electricity and Gas Inspection Regulations*. Installation and use requirements are set forth in specifications established pursuant to section 12 of the Regulations. Verification of conformity is required in addition to this approval for all metering devices excepting instrument transformers. Inquiries regarding inspection and verification should be addressed to the local office of Measurement Canada.

### Original document signed by:

Adnan Rashid  
Senior Engineer – Electricity Measurement  
Engineering and Laboratory Services Directorate

## PARTIE 4 – Approbation

La conception, la composition, la construction et la performance du(des) type(s) de compteur(s) identifié(s) ci-dessus ayant fait l'objet d'une évaluation conformément au Règlement et aux normes établis aux termes de la *Loi sur l'inspection de l'électricité et du gaz*, la présente approbation est accordée en application du paragraphe 9(4) de ladite Loi.

Le scellage, le marquage, l'installation et l'utilisation des compteurs sont soumis à l'inspection conformément au Règlement et aux normes établis aux termes de la *Loi sur l'inspection de l'électricité et du gaz*. Les exigences de scellage et de marquage sont définies dans les normes établies en vertu de l'article 18 du *Règlement sur l'inspection de l'électricité et du gaz*. Les exigences d'installation et d'utilisation sont définies dans les normes établies en vertu de l'article 12 dudit règlement. En plus de cette approbation et sauf dans les cas des transformateurs de mesure, une vérification de conformité est requise. Toute question sur l'inspection et la vérification de conformité doit être adressée au bureau local de Mesures Canada

### Copie authentique signée par :

Adnan Rashid  
Ingénieur principal – Mesure de l'électricité  
Direction de l'ingénierie et des services de laboratoire

**Date: 2020-11-04**

Web Site Address / Adresse du site Internet:  
<http://mc.ic.gc.ca>