

Orifices WorkFlow





Document #
OXIKIT-OR001

Date Effective

Supersedes Document Version #:

Document Title

Workflow - Orifices

Change History Log:

onange meter	, 						
VERSION #	REVISION	DESCRIPTION OF CHANGE					
	DATE	FROM	ТО				
1.0	11/27/2020	Original Release					
	_		_				

I. Purpose:

This Workflow is intended to serve as a guide in making the Orifices of the Oxikit.

II. Scope:

This guideline applies to all individuals who wish to build the DIY Oxikit. It includes the Materials, tools and the Video Link needed in making the Orifices.

III. Picture:



Fig 1.0 (Orifices)



Document #

Date Effective

OXIKIT-OR001

Supersedes Document Version #:

Document Title

Workflow - Orifices

IV. Safety Operating Conditions:

- Always wear protective gloves

V. Workflows

- Please see next page for the step by step guidelines in making the Orifices

Process		Material			Tools	YouTube Link
	Name	Description	Metric Conversion	Unit of * Measure	Caliper	https://www.youtu be.com/watch?v= qwXvRReWQ54&
	Aluminum Rod	1/4" Aluminum Rod	6.4mm Aluminum Rod	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
Measure 7mm into the aluminum rod.						
	Name	Description	Metric Conversion	Unit of * Measure	Sharpie/Marker	https://www.youtu be.com/watch?v= qwXvRReWQ54&
	Aluminum Rod	1/4" Aluminum Rod	6.4mm Aluminum Rod	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
Label 7mm into the aluminum rod.						nuex-7
	Measure 7mm into the aluminum rod.	Measure 7mm into the aluminum rod. Name Aluminum Rod Name Aluminum Rod Label 7mm into the	Name Description Aluminum 1/4" Aluminum Rod Measure 7mm into the aluminum rod. Name Description Aluminum 1/4" Aluminum Rod Label 7mm into the aluminum rod.	Name Description Metric Conversion Aluminum Rod Aluminum Aluminum Rod Measure 7mm into the aluminum rod. Name Description Metric Conversion Aluminum I/4" Aluminum Aluminum Rod Aluminum I/4" Aluminum Aluminum Rod Rod Aluminum Aluminum Rod Label 7mm into the	Name Description Metric Conversion Measure Aluminum Rod Aluminum Rod Piece Measure 7mm into the aluminum rod. Name Description Metric Conversion Measure Aluminum Rod Metric Conversion Measure Aluminum Rod Aluminum Rod Piece Aluminum Rod Aluminum Rod Rod Aluminum Rod Rod Aluminum Rod Rod Measure	Name Description Metric Conversion Measure Aluminum 1/4" Rod Aluminum Rod Rod Piece Name Description Metric Conversion Piece Name Description Metric Conversion Measure Aluminum rod. Name Description Metric Conversion Measure Aluminum 1/4" Rod Aluminum Rod Rod Piece Aluminum Rod Rod Piece Label 7mm into the aluminum rod.

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Tube Cutter	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Aluminum Rod	1/4" Aluminum Rod	6.4mm Aluminum Rod	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
3	Cut the aluminum rod. Make 6 pieces						
	rod. Make o pieces						
		Name	Description	Metric Conversion	Unit of Measure	Heavy NutLockingPliers	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
							ndex=7
4	Hold the Orifice in place						

Page **5** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Heavy NutLockingPliers	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece	HammerPunch Steel	list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
5	Mark and Punch a small hole on the center of the Orifice						ndex=7
		Name	Description	Metric Conversion	Unit of Measure	Drill Bit Machine	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
6	Place the Orifice inside the Drill Bit Machine Chuck						ndex=7

Page **6** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Drill Bit MachineDrill Bit1mm	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
7	Drill the marked Orifice using a 1mm Drill bit with a portable drillchuck until it reaches the other end of the orifice						ndex=7
		Name	Description	Metric Conversion	Unit of Measure	Drill BitMachineDrill Bit 1.5	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece	mm	list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
8	Drill the marked Orifice using a 1.5mm Drill bit with a portable drill chuck until it reaches theother end of the orifice						ndex=7

Page **7** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Drill Bit MachineDrill Bit 1.6	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece	mm	list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
9	Drill the marked Orifice using a 1.6mm Drill bit with a portable drill chuck until it reaches theother end of the orifice						ndex=7
		Name	Description	Metric Conversion	Unit of Measure	Drill Bit MachineDrill Bit 1/8"	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
10	Drill the other end of the Orifice using a 1/8" Drill bit (holding it by hand) until it reaches the middle portion of the orifice						ndex=7

Page **8** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description		Unit of Measure	 Drill Bit Machine Drill Bit 1/8" 	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
11	Drill the marked Orifice using a 1/8" Drill bit(holding it by hand) on the other end until it reaches the middle portion of the orifice						ndex=7
		Name	Description	Metric Conversion	Unit of Measure	RulerSharpie/Mar ker	https://www.youtu be.com/watch?v= qwXvRReWQ54&
12	Measure 104mm length of Tubing.	Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm Of (3 meters Per Machine Required		iloi	list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGI76&i ndex=7
	iongai oi rubing.			0 of 45			

Page **9** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Scissors/Cut ter	https://www.youtu be.com/watch?v= qwXvRReWQ54&
13	Cut the marked tubing as per step 12. Ensure tube is cut evenly, no	Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required)	meter		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
	skews on the end. Make 6 pieces						
		Name	Description	Metric Conversion	Unit of Measure	Punch Steel	https://www.youtu be.com/watch?v= qwXvRReWQ54&
14	Place and Push the orifices inside the clear vinyl tubing until it	Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required)	meter		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
	reaches themiddle Portion of the tube	Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		
			Dona 4				

Page **10** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure		https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i
15	Inspect the Orifices if they fit well inside the tubes. If loose, proceed to the next step. If fits well, product is okay						ndex=7
		Name	Description	Metric Conversion	Unit of Measure	RulerSharpie/Mar ker	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Nichrome Wire	50 feet Nichrome 80 wire 206	15,240 mm Nichrome 80 wir 206	Gram		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
16	Measure 5-7" of Nichrome Wire.						index=7

Page **11** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Wire Cutter Pliers	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Nichrome Wire	50 feet Nichrome 80 wire 206	15,240 mm Nichrome 80 wire 206	Gram		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
1 <i>7</i>	Cut the Nichrome wire.						ngox .
		Name	Description	Metric Conversion	Unit of Measure		https://www.youtu be.com/watch?v= qwXvRReWQ54&
18	Secure the Orifice by wrapping and twisting the wire around the tube near the Orifice. Ensure not	Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required)	meter		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
	to wrap the wire tightly, just enough to put the orifice in	Nichrome Wire	50 feet Nichrome 80 wire 206	15,240 mm Nichrome 80 wire 206	Gram		
	place in the tube	Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		
			Page 12	of 15			foreign 1.0

Process		Material			Tools	YouTube Link
	Name	Description	Metric Conversion	Unit of Measure	Wire Cutter Pliers	https://www.youtu be.com/watch?v= qwXvRReWQ54&
Cut the excess Nichrome wire	Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required)	meter		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGI76&i ndex=7
	Tee Push to connect fittings	3/8"Push to Connect to 3/8"Push to Connect to 3/8"Push to Connect - Tee	10mm Push to Connect to 10mm Push to Connect - Tee	Piece		
	Nichrome Wire	50 feet Nichrome 80	15,240 mm Nichrome 80	Gram		
	Name	Description	Metric Conversion	Unit of Measure	RulerSharpie/Mar ker	https://www.youtu be.com/watch?v= qwXvRReWQ54&
	Nichrome Wire	50 feet Nichrome 80 wire 206	15,240 mm Nichrome 80 wire 206	Gram		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
Measure 5-7" of Nichrome Wire.						ndex=/
	Cut the excess Nichrome wire	Cut the excess Nichrome wire Tee Push to connect fittings Name Nichrome Wire Name Nichrome Wire Measure 5-7" of	Name Description Tubing High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required) Tee Push 3/8"Push to Connect to 3/8"Push to fittings Connect to 3/8"Push to Connect to 3/8"Push to Connect - Tee Nichrome 50 feet Wire Nichrome 80 Name Description Nichrome 50 feet Nichrome 80 wire 206	Name Description Metric Conversion Tubing High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required) Tee Push 3/8"Push to Connect to 3/8"Push to Connect to fittings Connect to 3/8"Push to Connect - Tee Nichrome Wire To fict the Wire Nichrome 80 Nichrome 80 Wire 206 Name Description Metric Conversion Metric Conversion High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required) Tee Push 3/8"Push to Connect to 3/8"Push to Connect to 10mm Push to Connect to 3/8"Push to Connect - Tee Nichrome 50 feet 15,240 mm Nichrome 80 Name Description Metric Conversion Nichrome 50 feet 15,240 mm Nichrome 80 wire 206	Name Description Metric Conversion Measure Tubing High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required) Tee Push to Connect to Connect to 3/8"Push to to Connect to 3/8"Push to fittings Connect - Tee Nichrome Wire So feet Nichrome 80 Name Description Metric Conversion Measure Nichrome 80 Name Description Metric Conversion Measure Nichrome 80 Nichrome	Name Description Metric Unit of Measure

Page **13** of **15**

Steps	Process		Material			Tools	YouTube Link
		Name	Description	Metric Conversion	Unit of Measure	Wire Cutter Pliers	https://www.youtu be.com/watch?v= qwXvRReWQ54&
		Nichrome Wire	50 feet Nichrome 80 wire 206	15,240 mm Nichrome 80 wire 206	Gram		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
21	Cut the Nichrome wire.						
		Name	Description	Metric Conversion	Unit of Measure		https://www.youtu be.com/watch?v= qwXvRReWQ54&
22	Secure the Orifice by wrapping and twisting the wire around the other end of the tube near the	Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required)	meter		list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGl76&i ndex=7
	Orifice. Ensure not to wrap the wire tightly, just enough to put the orifice in	Nichrome Wire	50 feet Nichrome 80 wire 206	15,240 mm Nichrome 80 wire 206	Gram		
	place inside the tube	Orifices	1/16" hole Orifices	1.6 mm hole Orifices	Piece		
			Page 14	of 15			orgion 1.0

Steps		Process		Material			Tools	YouTube Link
	23	Cut the excess Nichrome wire	Name	Description	Metric Conversion	Unit of Measure	Wire Cutter Pliers	https://www.youtu be.com/watch?v= qwXvRReWQ54& list=PL4O1RQEiL pHBJ0i1zqe- CZk1p_NTtGI76&i ndex=7
			Tubing	High Density Polyethylene (HDPE) Tubing, 1/4" ID, 3/8" OD (10 Feet Per Machine Required)	High Density Polyethylene (HDPE) Tubing, 6mm ID, 10mm OD (3 meters Per Machine Required)	meter		
			Tee Push to connect fittings	3/8"Push to Connect to 3/8"Push to Connect to 3/8"Push to Connect - Tee	10mm Push to Connect to 10mm Push to Connect - Tee	Piece		
			Nichrome Wire	50 feet Nichrome 80	15,240 mm Nichrome 80	Gram		