

DRILL & TAP SIZE CHART

BOLT		CLOSE FIT			FREE FIT		TAP SIZE		
Type	Diameter	Close Fit	Drill Size	Nearest Fractional Drill Size	Free Fit	Drill Size	Tap Size	Drill Size	Nearest Fractional Drill Size
6-32	0.138	0.144	27	5/32	0.1495	25	0.1065	36	7/64
8-32	0.164	0.1695	18	11/64	0.177	16	0.136	29	9/64
10-32	0.19	0.196	10	3/16	0.201	7	0.159	21	5/32
10-24	0.19	0.196	10	3/16	0.201	7	0.15	24	5/32
1/4-20	0.25	0.257	F	1/4	0.266	H	0.201	E	13/64

All measurements are in inches.

FASTENER FAMILIES

5/32 Drill Size		9 Drill Size		1/4 Drill Size	
8-32 Bolt	Close Fit	10-32 Bolt	Free Fit	1/4-20 Bolt	Close Fit
5/32 Rivet	Free Fit	3/16 Rivet	Free Fit	1/4 Rivet	Close Fit
10-## Bolt	Tap Size	1/4-20 Bolt	Tap Size	5/16-18 Bolt	Tap Size

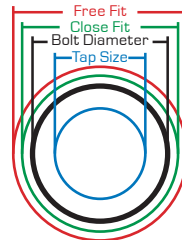
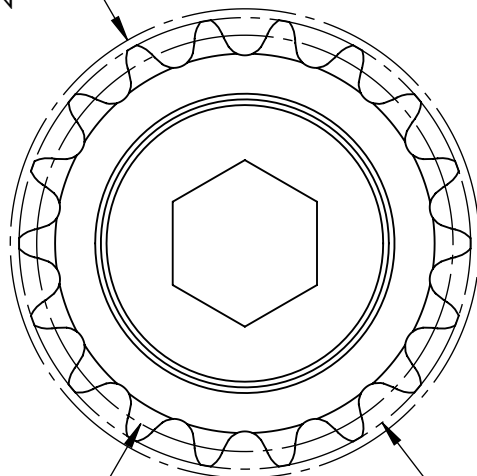


Diagram not to scale.

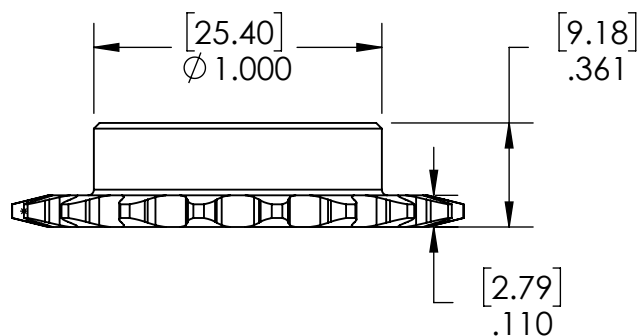
#25 SPROCKETS W/ HUB

OUTER DIAMETER
W/ CHAIN



PITCH DIAMETER

OUTER DIAMETER

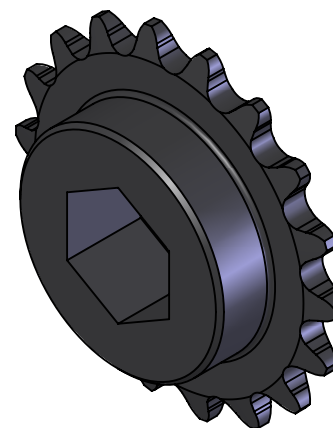


NOTE:

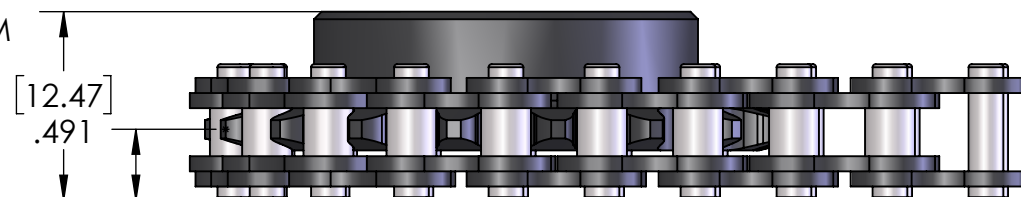
(1) THE ALUMINUM GEARS ARE MADE FROM 7075-T6 ALUMINUM AND COATED WITH A TEFLON INFUSED CERAMIC

(2) THE STEEL GEARS ARE MADE FROM 4140 STEEL AND COATED W/ BLACK NITRIDE

PART #	TOOTH COUNT	PITCH DIAMETER (REF)	OUTER DIAMETER	OUTER DIAMETER W/ CHAIN (REF)	BORE	MATERIAL
217-5833	16	1.273"	1.406"	1.503"	3/8" HEX	ALUMINUM
217-2642	16	1.273"	1.406"	1.503"	1/2" HEX	ALUMINUM
217-2643	16	1.273"	1.406"	1.503"	1/2" ROUND	ALUMINUM
217-5834	18	1.432"	1.568"	1.662"	3/8" HEX	ALUMINUM
217-3488	18	1.432"	1.568"	1.662"	1/2" HEX	ALUMINUM
217-5835	22	1.751"	1.888"	1.981"	3/8" HEX	ALUMINUM
217-2640	22	1.751"	1.888"	1.981"	1/2" HEX	ALUMINUM
217-2641	22	1.751"	1.888"	1.981"	1/2" ROUND	ALUMINUM



MAX WIDTH WITH CHAIN (NO MASTERLINK)

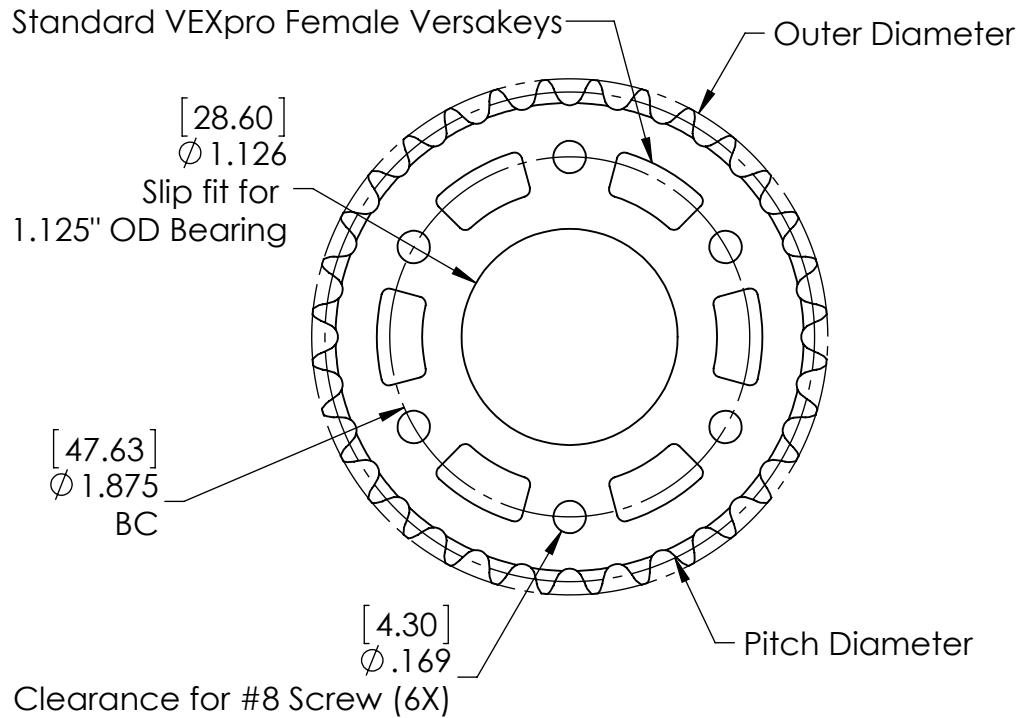


Description	#25 SPROCKETS W/ HUB		
Dwg No	217-#25 Sprockets with Hub		
Project	VEXpro	Sheet 1 of 1	
Release	7/24/2017	ALL DIMENSIONS ARE IN INCHES [MM].	

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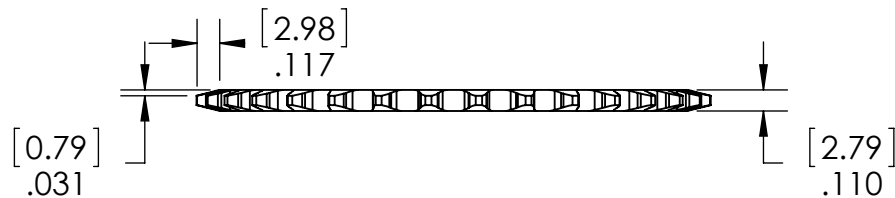
#25 Plate Sprockets

Common Dimensions



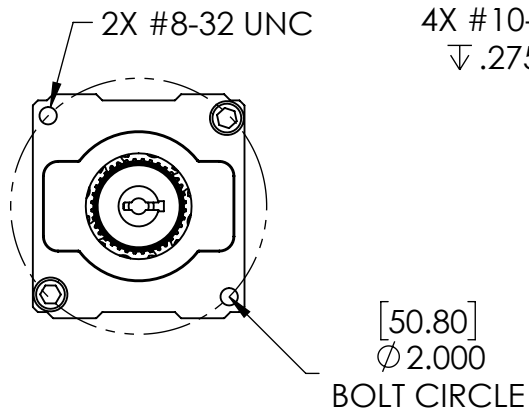
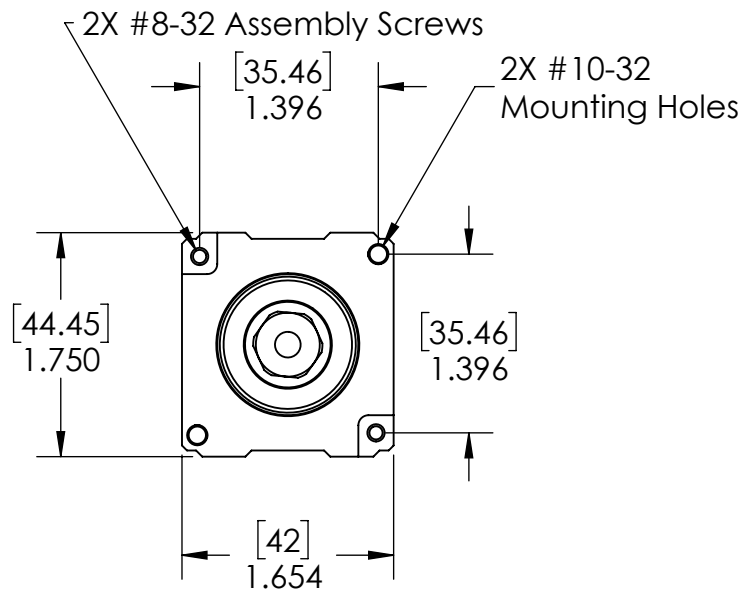
Available Tooth Counts

Part #	Tooth Count	Pitch Diameter	Outer Diameter (ref)
217-2690	32	2.551	2.688
217-2664	34	2.709	2.848
217-2639	36	2.868	3.008
217-2638	38	3.027	3.167
217-2637	40	3.187	3.327
217-2636	42	3.345	3.486
217-2635	44	3.504	3.645
217-2634	48	3.823	3.964
217-2633	54	4.300	4.442
217-2632	58	4.618	4.761
217-2631	60	4.777	4.92
217-2629	64	5.095	5.239
217-2628	66	5.254	5.398
217-2627	72	5.731	5.84

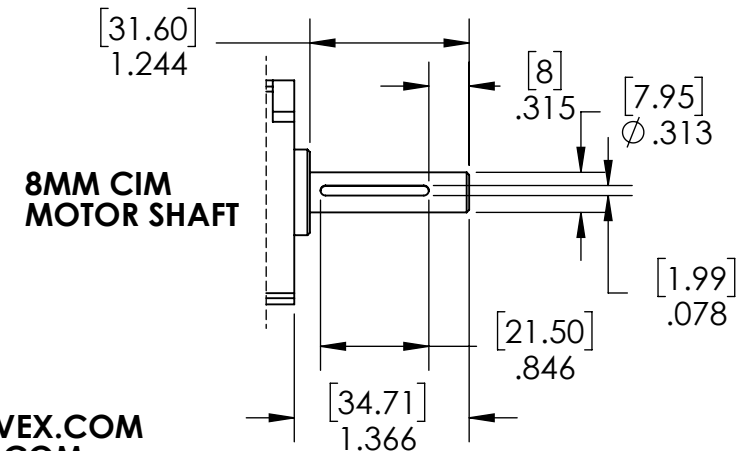
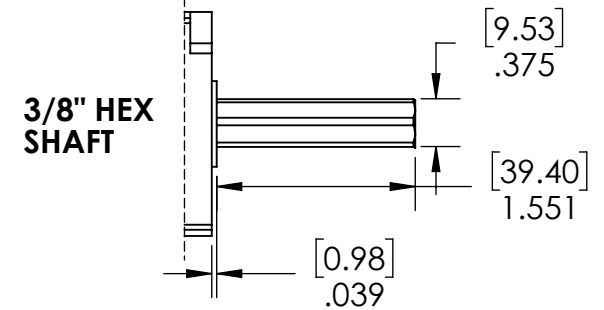
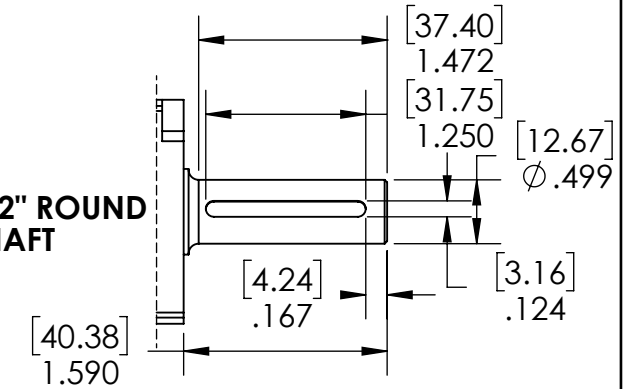
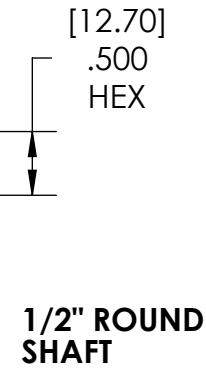
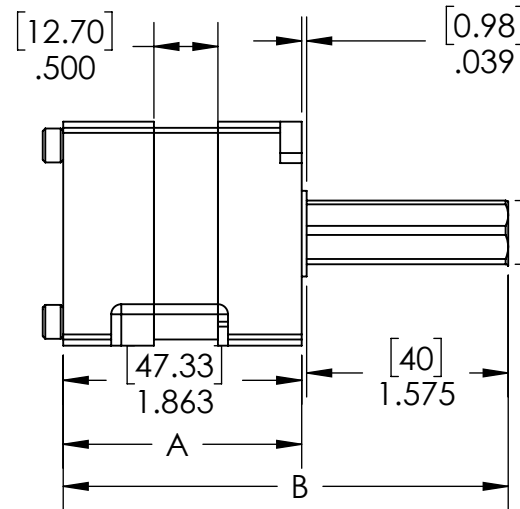


Description	#25 Plate Sprockets		
Dwg No	217- #25 Plate Sprockets Release		
Project	VEXpro	Sheet 1 of 1	
Release	1/24/2014	ALL DIMENSIONS ARE IN INCHES [MM].	

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1/2" HEX OUTPUT SHAFT



# OF STAGES	A	B	C
1	1.863	3.477	1.25
2	2.363	3.977	1.75
3	2.863	4.477	2.25



Description
VersaPlanetary v2 LAYOUT DRAWING

Dwg No
217-4974

Project
VEXpro

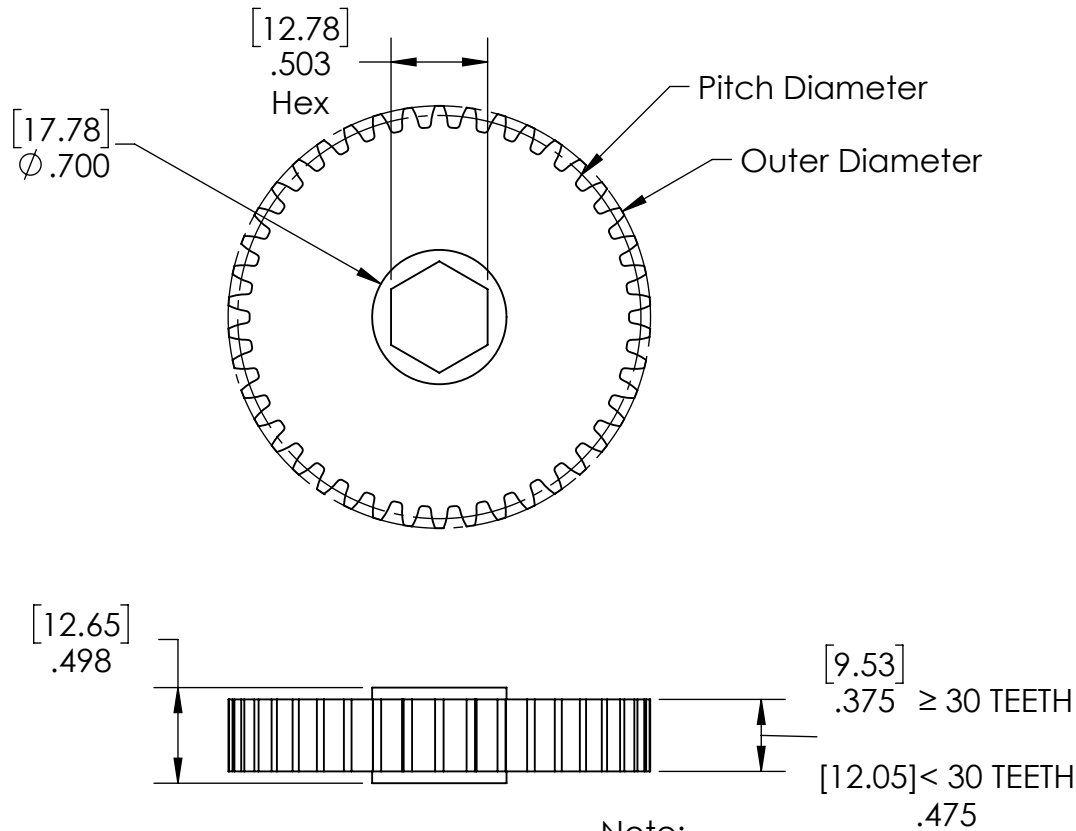
Sheet 1 of 1

Release
2/19/2019

ALL DIMENSIONS ARE IN INCHES [MM].

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0.500" Hex Gears



Note:
Face Width shown is for gears
with 30 teeth or greater

Part #	Tooth Count	Pitch Diameter (ref)	Outer Diameter	Material
217-3209	18	0.900	1.000	Aluminum
217-5460	18	0.900	1.000	Steel
217-2702	20	1.000	1.100	Aluminum
217-5461	20	1.000	1.100	Steel
217-5462	22	1.100	1.200	Aluminum
217-5463	22	1.100	1.200	Steel
217-2704	24	1.200	1.300	Aluminum
217-5464	24	1.200	1.300	Steel
217-5465	26	1.300	1.400	Aluminum
217-5466	26	1.300	1.400	Steel
217-5467	28	1.400	1.500	Aluminum
217-5468	28	1.400	1.500	Steel
217-2705	30	1.500	1.600	Aluminum
217-5469	30	1.500	1.600	Steel
217-5470	32	1.600	1.700	Aluminum
217-2706	34	1.700	1.800	Aluminum
217-3214	36	1.800	1.900	Aluminum
217-5471	38	1.900	2.000	Aluminum
217-2708	40	2.000	2.100	Aluminum
217-3216	42	2.100	2.200	Aluminum
217-2710	44	2.200	2.300	Aluminum
217-5472	46	2.300	2.400	Aluminum
217-3218	48	2.400	2.500	Aluminum
217-3572	50	2.500	2.600	Aluminum
217-5473	52	2.600	2.700	Aluminum
217-3573	54	2.700	2.800	Aluminum
217-5474	56	2.800	2.900	Aluminum
217-5475	58	2.900	3.000	Aluminum
217-3574	60	3.000	3.100	Aluminum
217-5476	62	3.100	3.200	Aluminum
217-3575	64	3.200	3.300	Aluminum
217-3223	66	3.300	3.400	Aluminum
217-5477	68	3.400	3.500	Aluminum
217-3576	72	3.600	3.700	Aluminum
217-5478	74	3.700	3.800	Aluminum
217-5479	76	3.800	3.900	Aluminum
217-5480	78	3.900	4.000	Aluminum
217-5481	80	4.000	4.100	Aluminum
217-5482	82	4.100	4.200	Aluminum
217-3577	84	4.200	4.300	Aluminum

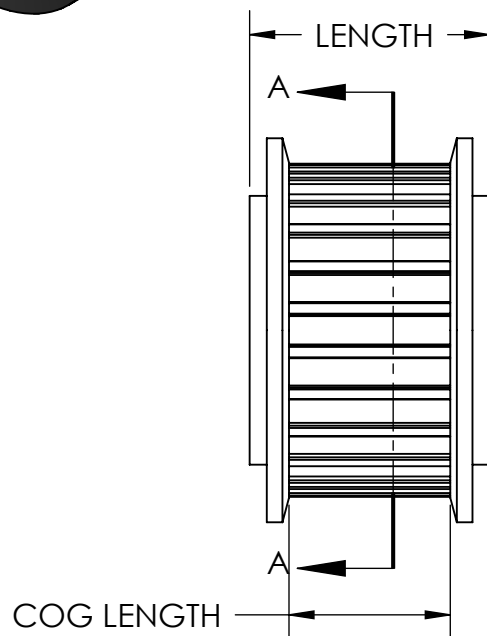
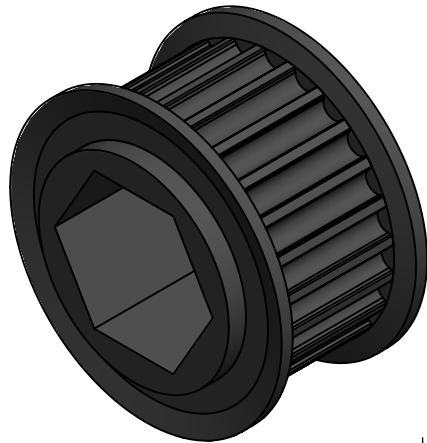
Note:
(1) Made from 7075-T6 aluminum
and coated with a teflon infused ceramic



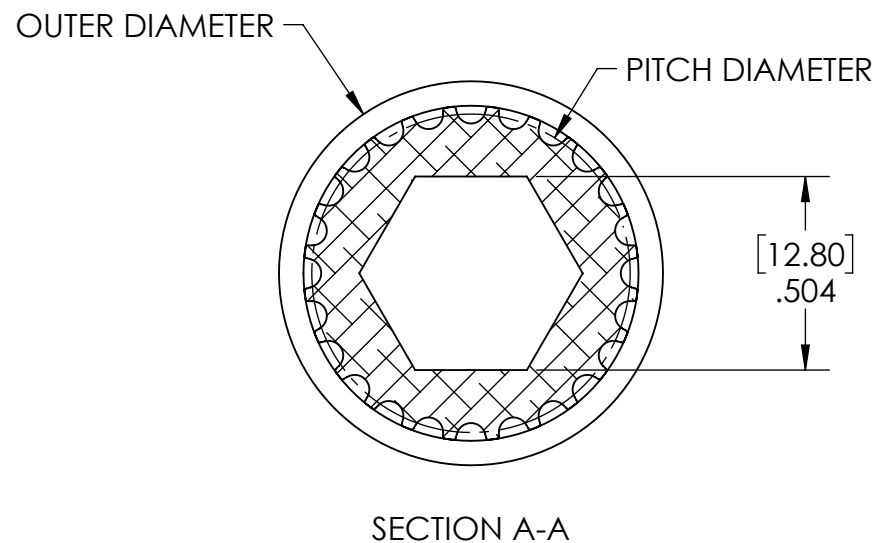
Description	0.500" Hex Gears		
Dwg No	VEXpro-Gears-Hex-0500 Rev4		
Project	VEXpro	Sheet 1 of 1	
Release	11/1/2018	ALL DIMENSIONS ARE IN INCHES [MM].	

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GT2 TIMING PULLEYS (1/2" HEX BORE)



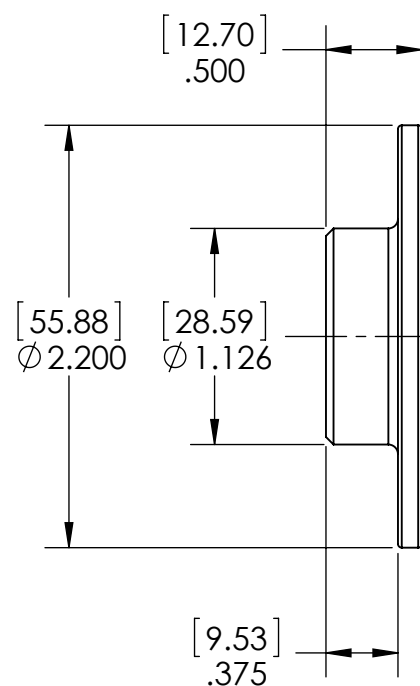
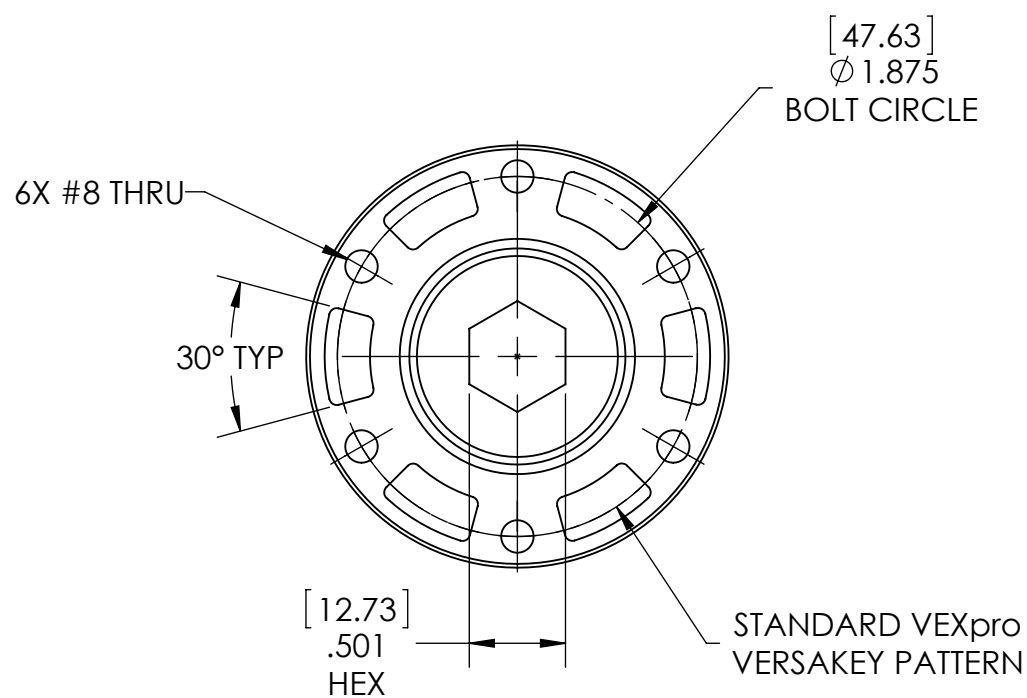
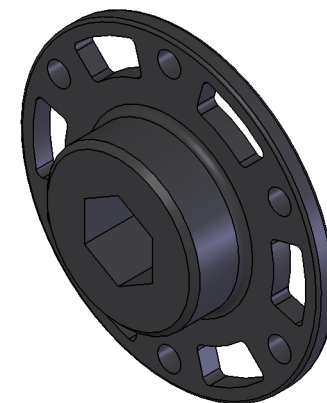
PART #	NUMBER OF TEETH	OUTER DIAMETER	PITCH DIAMETER	COG LENGTH	LENGTH	MATERIAL
217-5875	24	1.000"	0.902"	0.420"	0.625"	ALUMINUM
217-5873	36	1.535"	1.353"	0.420"	0.625"	ALUMINUM
217-5874	48	2.008"	1.805"	0.420"	0.625"	ALUMINUM
217-5876	60	2.402"	2.256"	0.420"	0.625"	ALUMINUM



Description	GT2 TIMING PULLEYS		
Dwg No	VEXpro-Pulleys-GT2-500-Hex		
Project	VEXpro	Sheet 1 of 1	
Release	11/29/2017	ALL DIMENSIONS ARE IN INCHES [MM].	

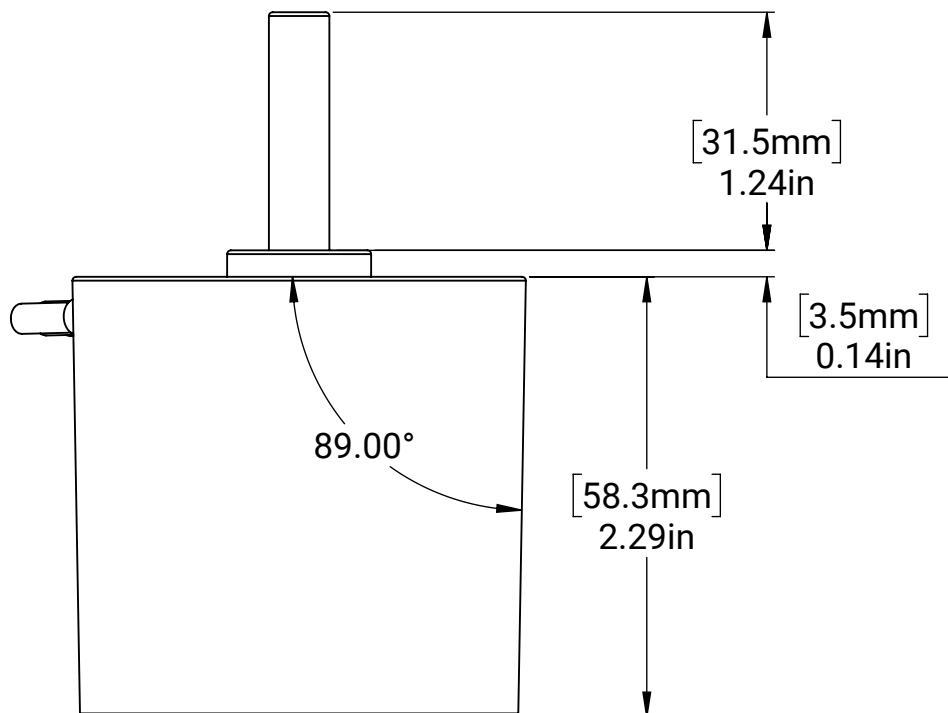
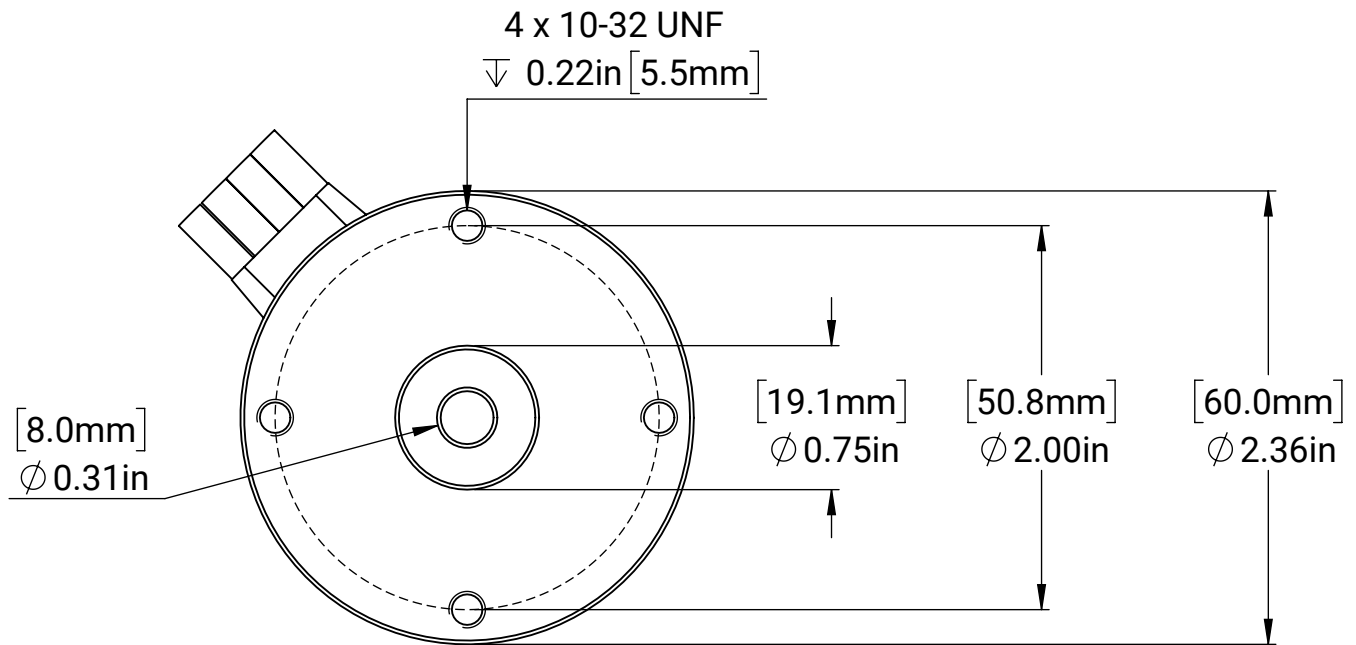
NOTE:
(1) PULLEYS ARE BLACK ANODIZED

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Description	VERSAHUB 1/2" HEX		
Dwg No	217-2592-Release		
Project	VEXpro	Sheet 1 of 1	
Release	1/22/2014	ALL DIMENSIONS ARE IN INCHES [MM].	

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MM SHEET TOLERANCES:

X \pm 0.50 MM
 X.X \pm 0.10 MM
 X.XX \pm 0.05 MM
 ANGLES \pm 2°

INCH SHEET TOLERANCES:

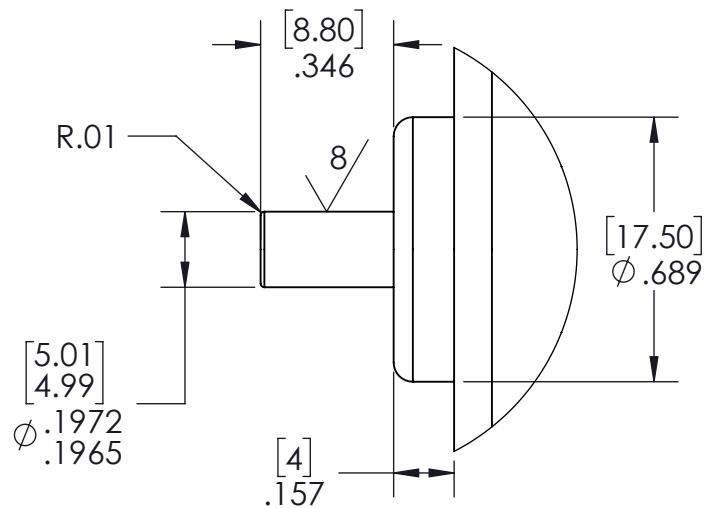
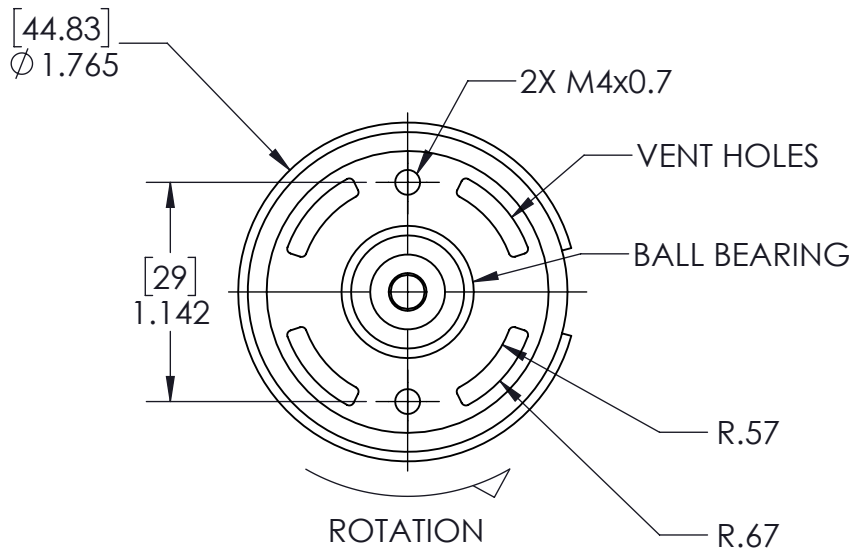
X \pm 0.1 IN
 X.X \pm 0.02 IN
 X.XX \pm 0.004 IN
 X.XXX \pm 0.002 IN
 ANGLES \pm 2°

MATERIAL:

DATE: 7/31/2020

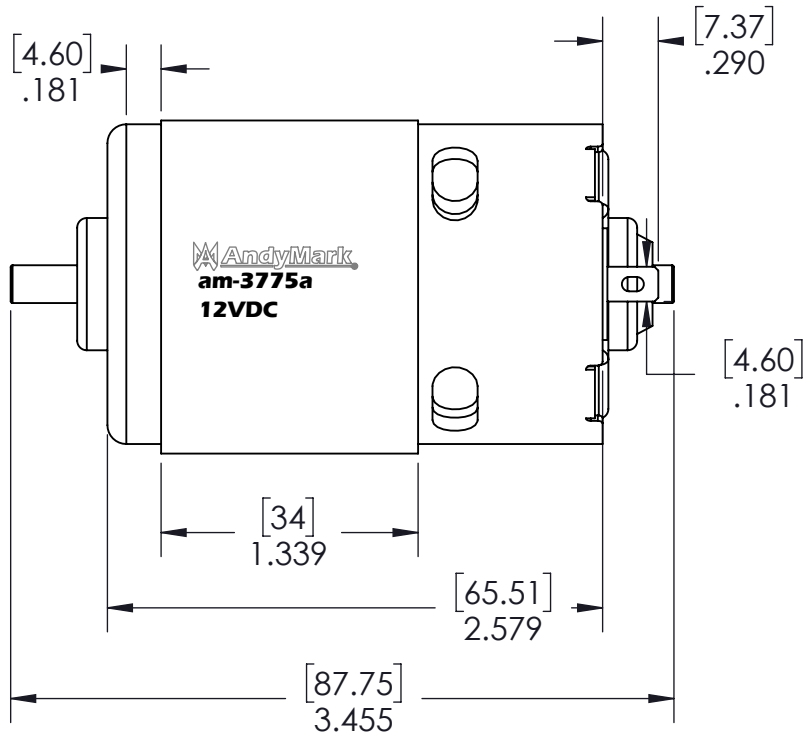
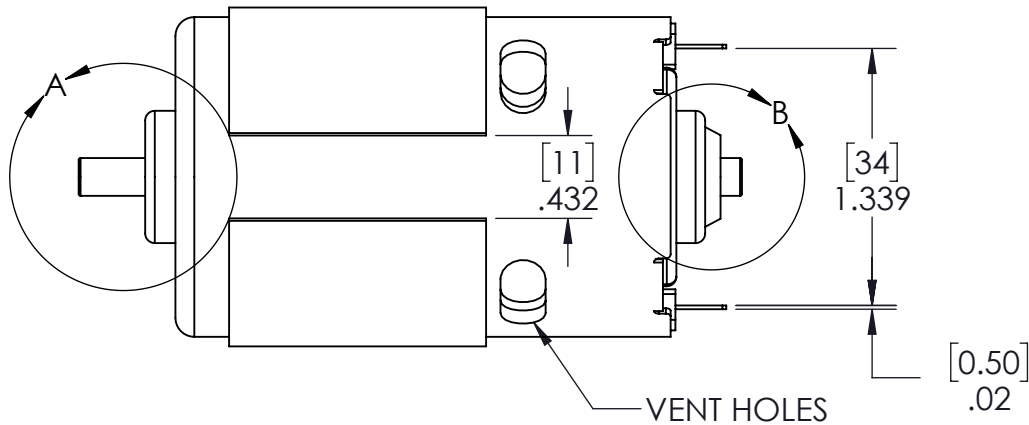
REVISION HISTORY				AndyMark
REV.	DESCRIPTION	DATE	DRAWN BY	
1	ORIGINAL PRINT	12/6/2018	N. LAWRENCE	

B

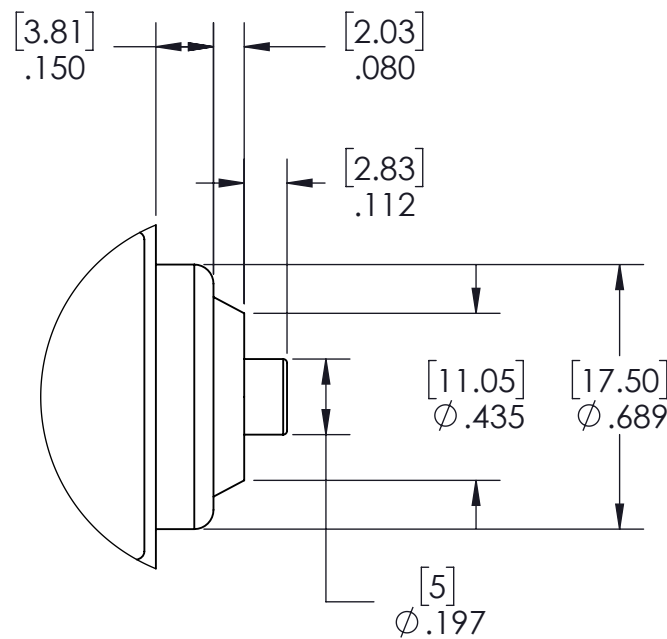
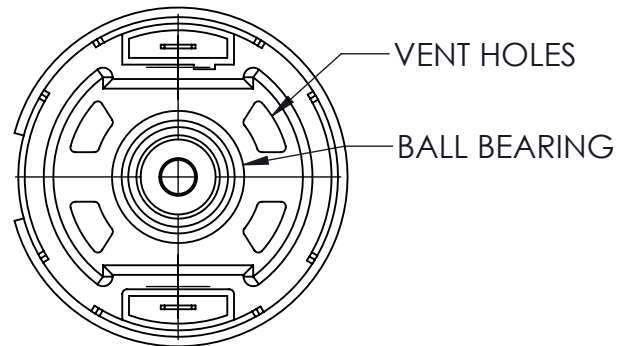


DETAIL A
SCALE 2 : 1

3

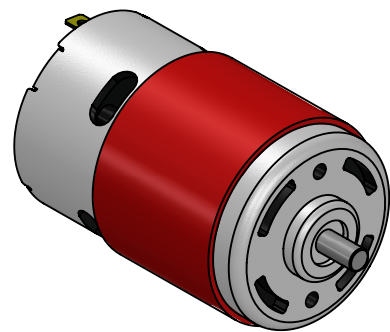


1



DETAIL B
SCALE 2 : 1

*** SEE CAD FOR ADDITIONAL TOOLPATH INFO***



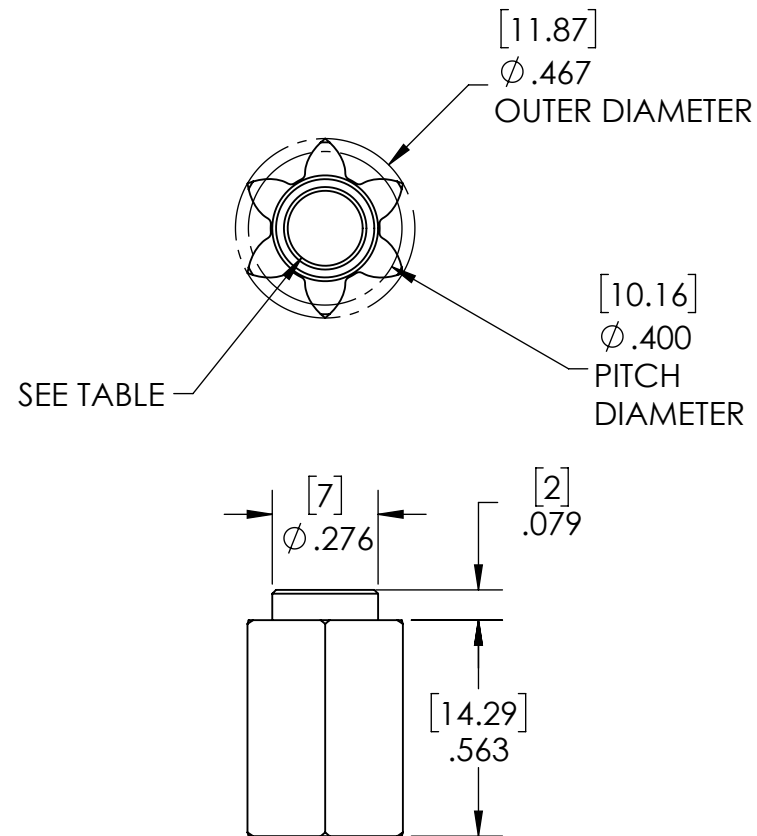
THEORETICAL PERFORMANCE SPECIFICATIONS	
NOMINAL VOLTAGE	12VDC
NO LOAD SPEED	21020 RPM
NO LOAD CURRENT	3.8 A
STALL TORQUE	0.7N-m
STALL CURRENT	130.12 A
MAX POWER	382.2 W

UNLESS OTHERWISE SPECIFIED:		COMMENTS:		
DIMENSIONS ARE IN INCHES		DUAL DIMENSIONS ARE IN MILLIMETERS.		
TOLERANCES:		BREAK ALL SHARP EDGES.		
FRACTIONAL				
ANGULAR: MACH				
ANGULAR: BEND				
ONE PLACE DECIMAL				
TWO PLACE DECIMAL				
THREE PLACE DECIMAL				
FOUR PLACE DECIMAL				
MATERIAL				
FINISH				
DO NOT SCALE DRAWING				

MOTOR			NAME	DATE
RED POWDERCOAT FLUX RING SILVER ZINC PLATED BODY				
			CHECKED	
			ENG APPR.	
			MFG APPR.	
			Q.A.	

TITLE:		ANDYMARK	
		775a REDLINE MOTOR	
SIZE	DWG. NO.	REV	
A	am-3775a	1	
SCALE: 1:1		SHEET 1 OF 1	

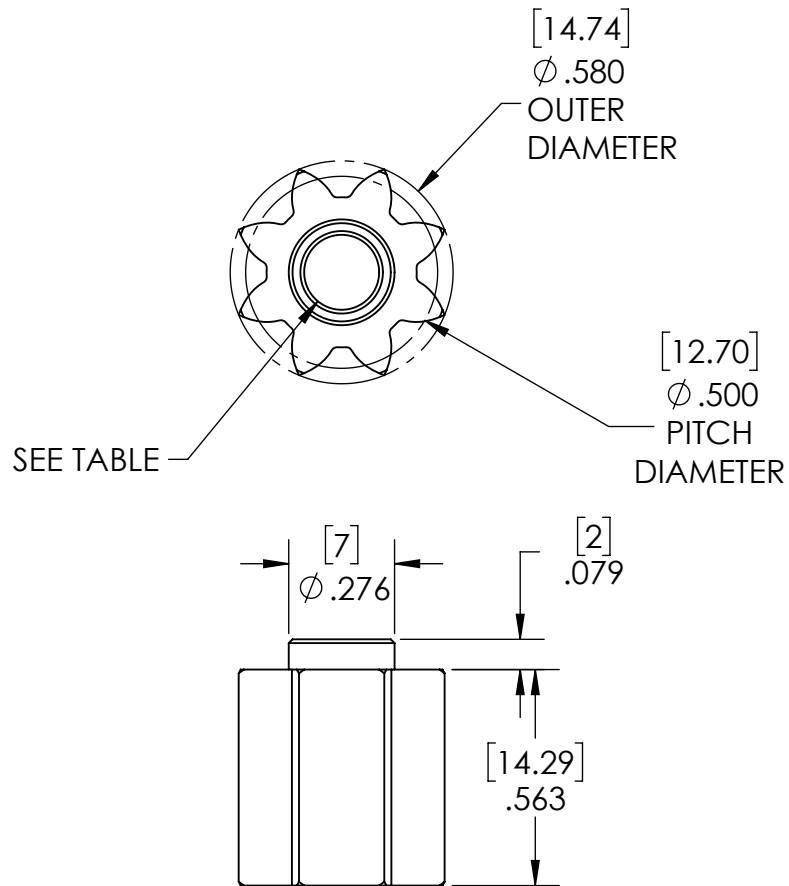
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6285	6	RS775	4140 STEEL	BLACK NITRIDE	[4.96] .195
217-6333	6	RS550	4140 STEEL	BLACK NITRIDE	[3.14] .124
217-6339	6	BAG MOTOR	4140 STEEL	BLACK NITRIDE	[3.98] .157



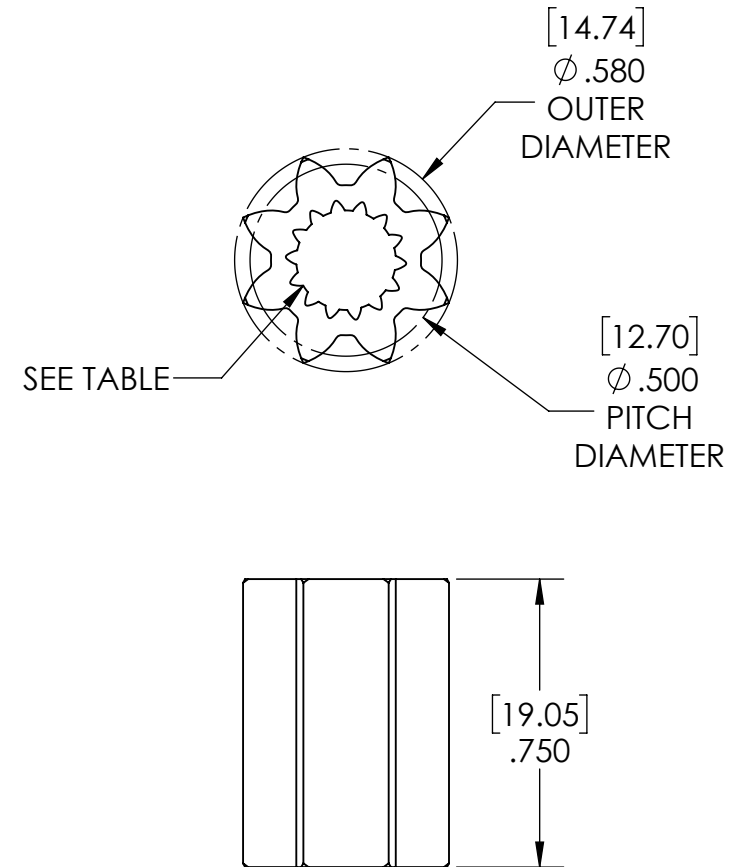
Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions		
Project	VEXpro	Sheet 1 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6362	8	RS775	4140 STEEL	BLACK NITRIDE	[4.96] .195
217-6367	8	RS550	4140 STEEL	BLACK NITRIDE	[3.14] .124
217-6368	8	BAG MOTOR	4140 STEEL	BLACK NITRIDE	[3.98] .157



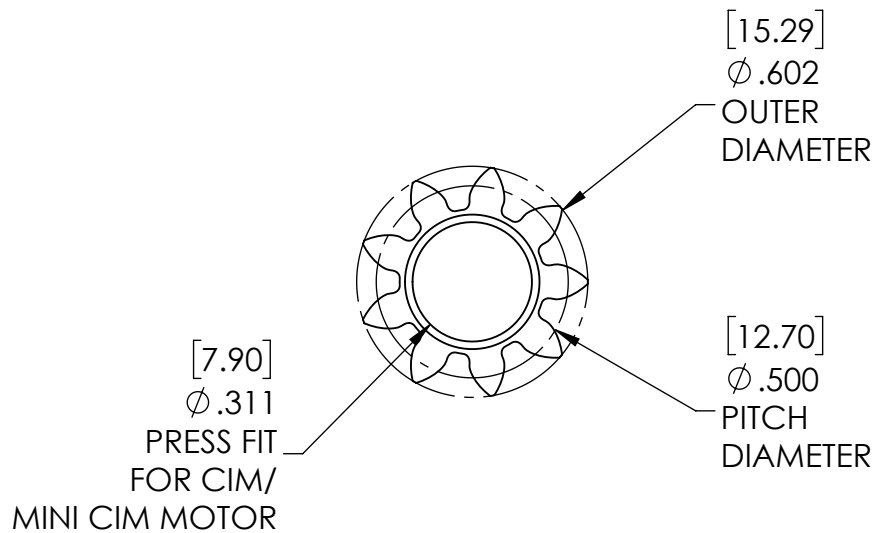
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6915	8	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



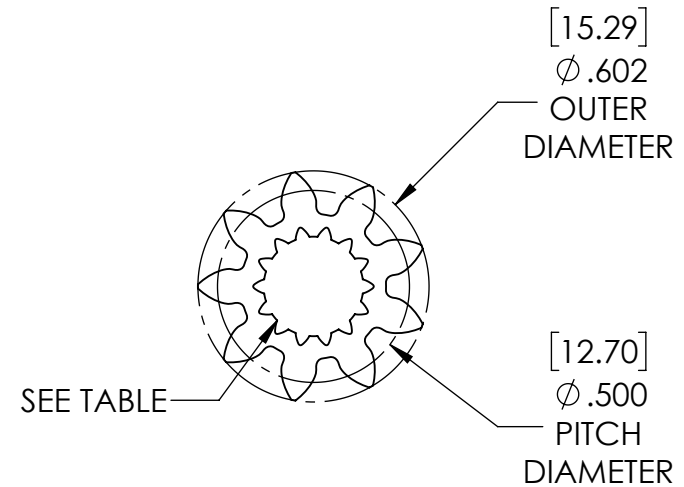
Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions Rev2		
Project	VEXpro	Sheet 2 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING
217-6335	9	CIM/MINI CIM MOTOR	4140 STEEL	BLACK NITRIDE



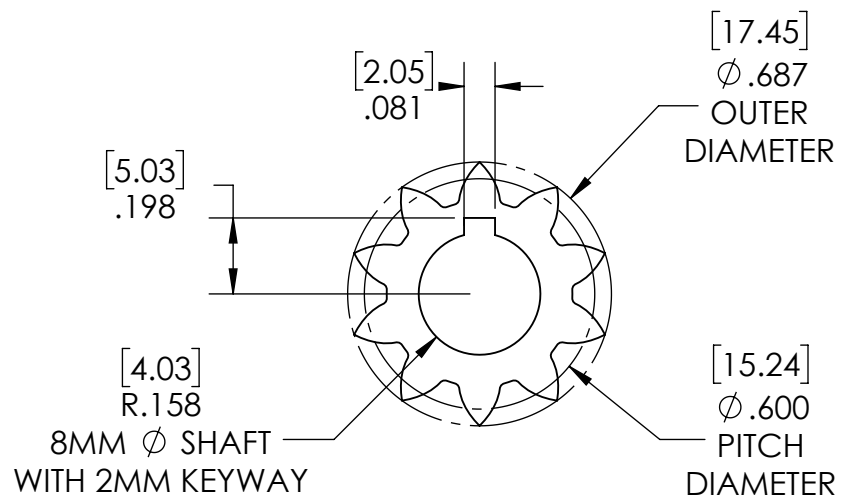
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6916	9	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



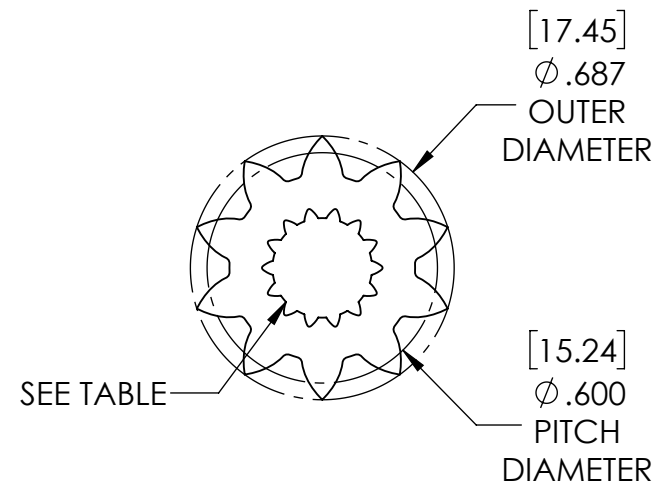
Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions		
Project	VEXpro	Sheet 3 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING
217-6334	10	CIM/MINI CIM MOTOR	4140 STEEL	BLACK NITRIDE



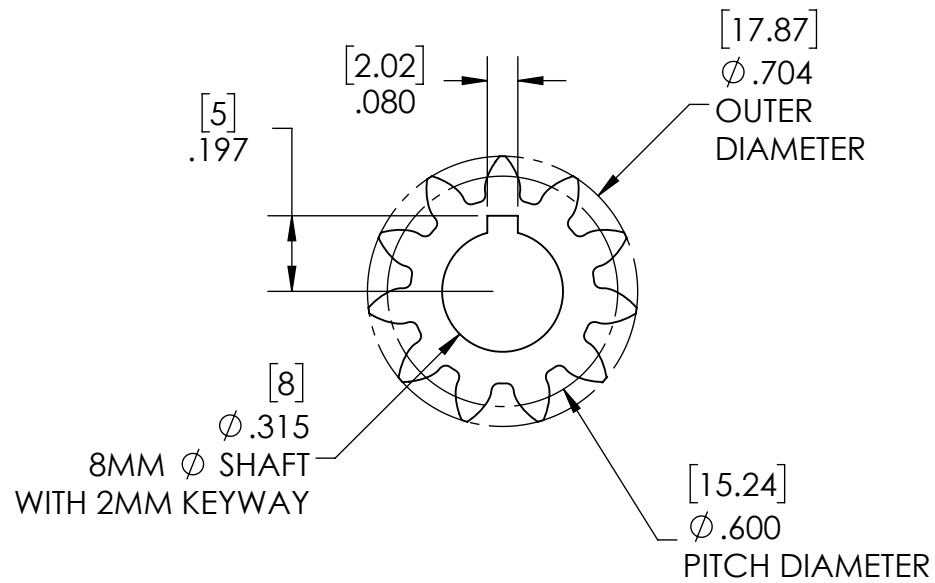
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6917	10	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



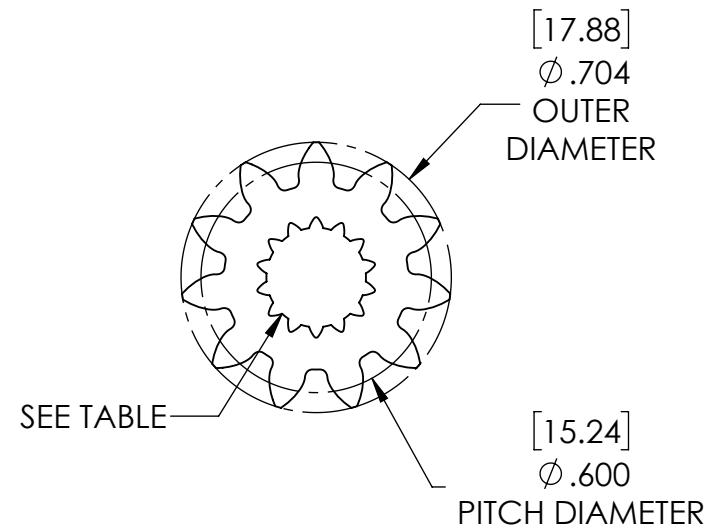
Description	MOTOR PINION		
Dwg No	VEXpro-Gears-Pinions Rev2		
Project	VEXpro	Sheet 4 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING
217-3107	11	CIM/MINI CIM MOTOR	4140 STEEL	BLACK NITRIDE



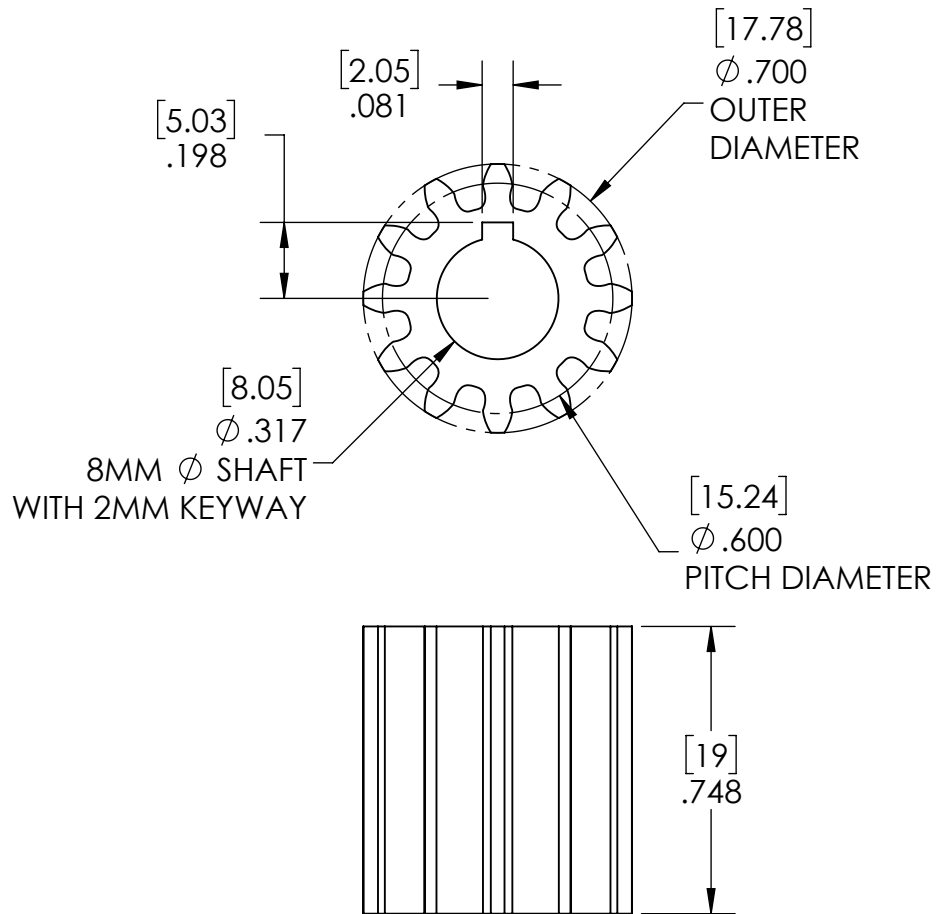
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6918	11	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



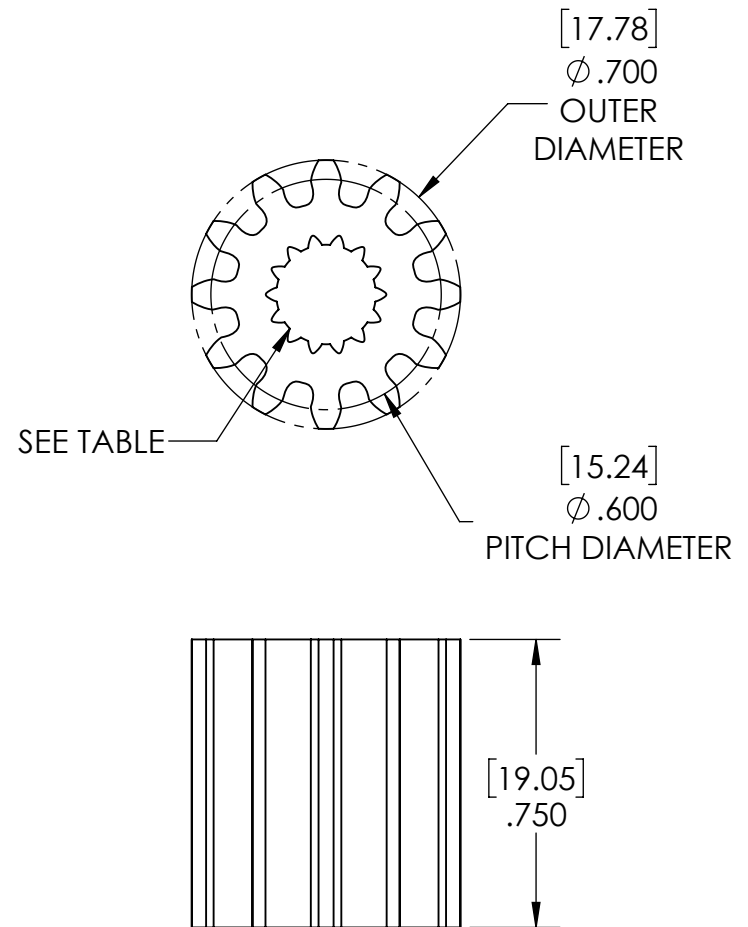
Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions		
Project	VEXpro	Sheet 5 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING
217-2614	12	CIM/MINI CIM MOTOR	7075 T-6 ALUMINUM	TEFLON INFUSED CERAMIC COATING
217-3099	12	CIM/MINI CIM MOTOR	4140 STEEL	BLACK NITRIDE



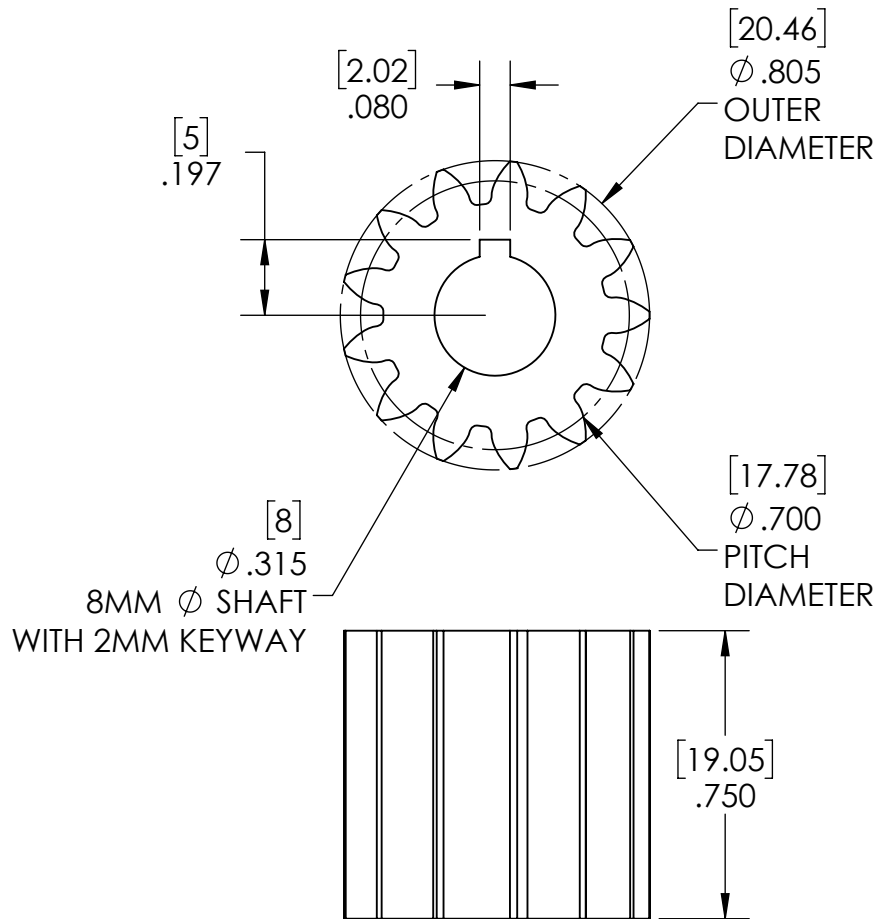
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6919	12	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



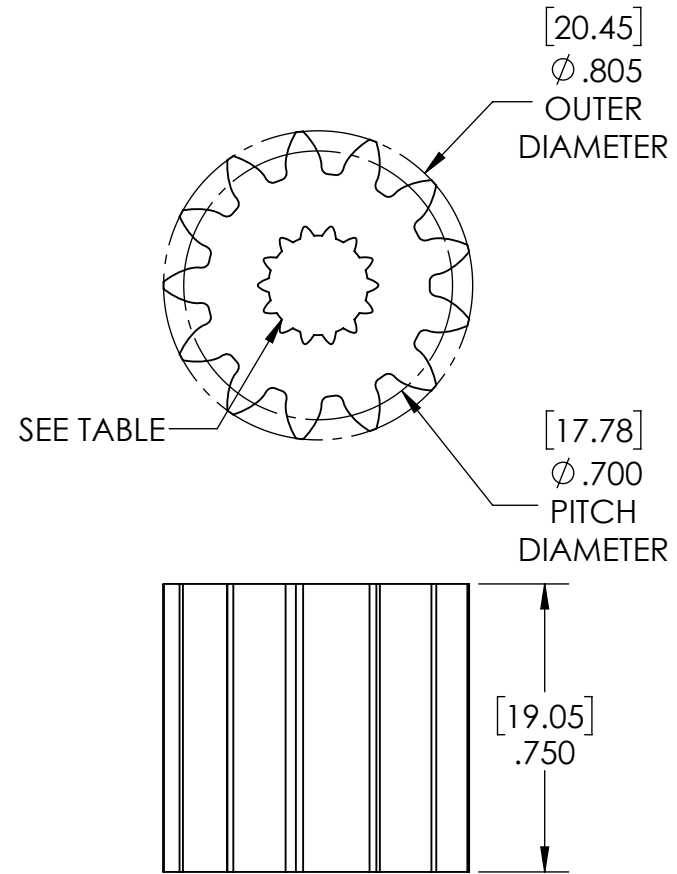
Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions Rev2		
Project	VEXpro	Sheet 6 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING
217-3416	13	CIM/MINI CIM MOTOR	4140 STEEL	BLACK NITRIDE



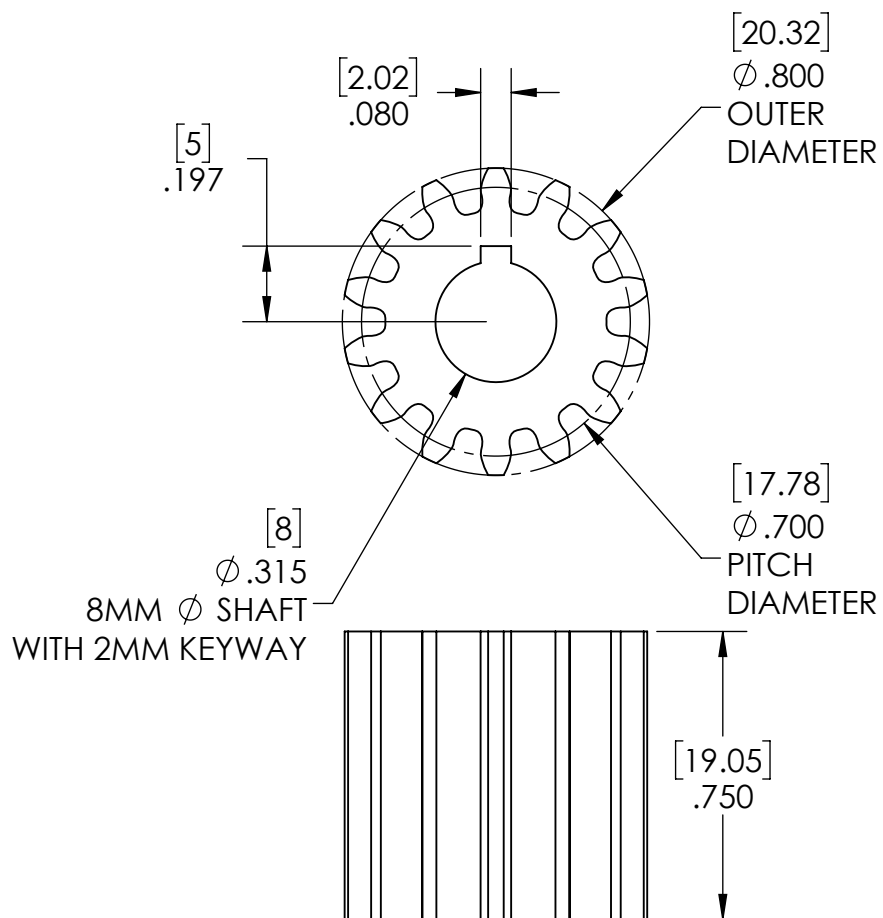
P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6921	13	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



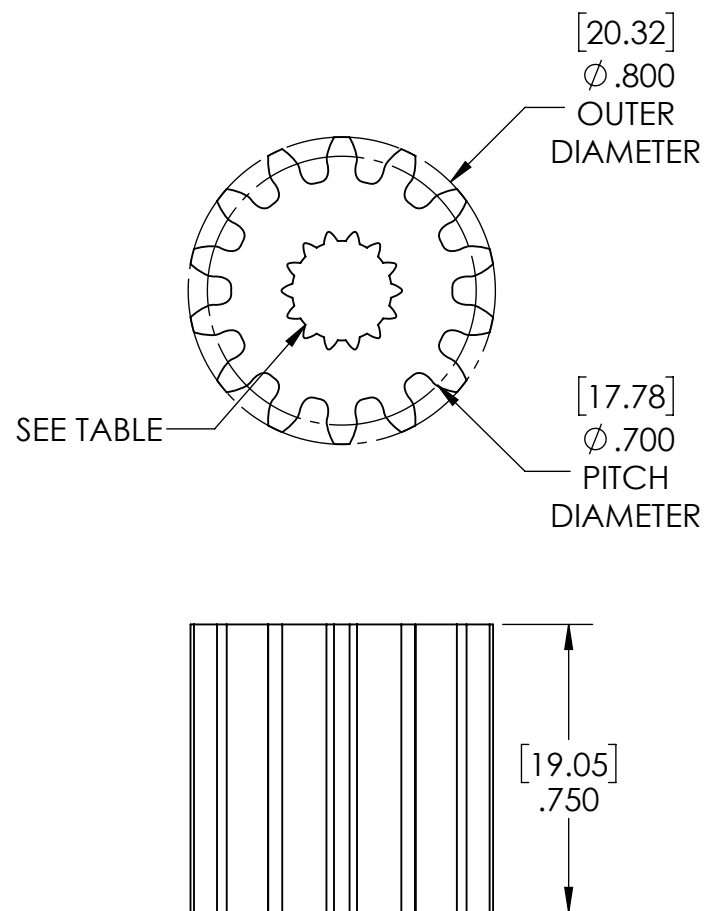
Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions		
Project	VEXpro	Sheet 7 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING
217-3414	14	CIM/MINI CIM MOTOR	4140 STEEL	BLACK NITRIDE



P/N	TOOTH COUNT	FOR MOTOR	MATERIAL	COATING	ID
217-6922	14	FALCON	4140 STEEL	BLACK NITRIDE	FALCON SPLINE



Description	MOTOR PINIONS		
Dwg No	VEXpro-Gears-Pinions Rev2		
Project	VEXpro	Sheet 8 of 8	
Release	1/6/2020	ALL DIMENSIONS ARE IN INCHES [MM].	

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