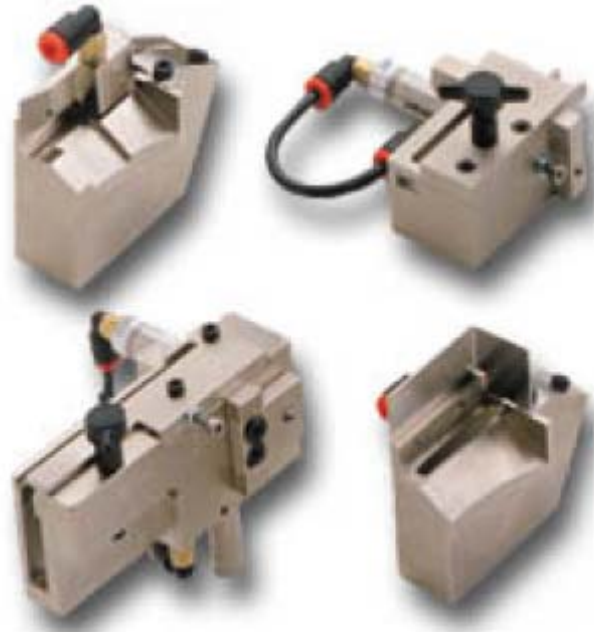


# Automatic Tooling Charts

Customer Copy January 5, 2009



# Automatic Tooling Charts

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### Standard Fasteners

The Standoff, Stud and Nut Tooling listed are designed to be used with standard fasteners, such as those manufactured by Captive Fastener Corporation and PEM (Penn Engineering & Manufacturing Corp.). Fasteners such as Camcar's Strux line are slightly larger and require different tooling which Haeger's Specials Group can supply. Consult your local Haeger Distributor for further information.

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# SHUTTLE NUT TOOLING

Captive: C, CS  
PEM : S, SS, CLS, CLSS

Customer Copy



- Notes:
1. A one-time purchase of a Shuttle Nut Controller, T-Bracket, and Vacuum Generator is required for shuttle nut tooling
  2. Haeger recommends purchasing a T-Bracket for each shuttle nut mechanism for faster change over and set up times.
  3. Shuttle Nut Controller and T-Bracket part numbers are located at the bottom of page 3.
  4. Please specify machine model and serial number when ordering a vacuum generator as a retrofit item.
  5. Note: CLA, CA Aluminum nuts are MADE TO ORDER TOOLING (Aluminum nuts are larger than steel nuts)  
The Standard tooling will need to be modified for the Aluminum fasteners.

## INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	Shuttle Nut Mech.	VACUUM ANVIL	LOWER TOOL ASSY.
<b>NUTS</b>			Included with set					
4-40-0,-1,-2	H-588-250	WHITE	H-407-250-72	H-512-250	H-915-250	H-581-250	H-398-084	H-442-166S
6-32-0,-1,-2	H-588-280	RED	H-407-280-72	H-512-280	H-915-280	H-581-280	H-398-105	H-442-187S
8-32-0,-1,-2	H-588-310	BLUE	H-407-310-72	H-512-310	H-915-310	H-581-310	H-398-129	H-442-213S
10-32-0,-1,-2	H-588-340	GREEN	H-407-340-72	H-512-340	H-915-340	H-581-340	H-398-155	H-442-250S
1/4-20-0,-1,-2	H-588-440	YELLOW	H-407-440-72	H-512-440	H-915-440	H-581-440	H-398-195	H-442-344S

## METRIC SIZES

FASTENER SIZE	SHUTTLE NUT TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	Shuttle Nut Mech.	VACUUM ANVIL	LOWER TOOL ASSY.
<b>NUTS</b>			Included with set					
M3-0,-1,-2	H-588-250M	WHITE	H-407-250-72	H-512-250-M	H-915-250	H-581-250	H-398-093	H-442-166S
M3.5-0,-1,-2	H-588-280M	RED	H-407-280-72	H-512-280-M	H-915-280	H-581-280	H-398-114	H-442-187S
M4-0,-1,-2	H-588-310M	BLUE	H-407-310-72	H-512-310-M	H-915-310	H-581-310	H-398-122	H-442-213S
M5-0,-1,-2	H-588-340M	GREEN	H-407-340-72	H-512-340-M	H-915-340	H-581-340	H-398-161	H-442-250S
M6-0,-1,-2	H-588-440M	YELLOW	H-407-440-72	H-512-440	H-915-440	H-581-440	H-398-186	H-442-344S

# SHUTTLE NUT TOOLING

Customer Copy

Captive : C, CS  
PEM: S,SS, CLS, CLSS



Dash -3 nuts only

INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	Shuttle Nut Mech.	VACUUM ANVIL	LOWER TOOL ASSY.
NUTS			Included with set					
4-40- 3	H-588-250-3	WHITE	H-407-250-72	H-512-250-3	H-915-250-3	H-581-250-3	H-398-084	H-442-166S
6-32-3	H-588-280-3	RED	H-407-280-72	H-512-280-3	H-915-280-3	H-581-280-3	H-398-105	H-442-187S
8-32-3	H-588-310-3	BLUE	H-407-310-72	H-512-310-3	H-915-310-3	H-581-310-3	H-398-129	H-442-213S
10-32-3	H-588-340-3	GREEN	H-407-340-72	H-512-340-3	H-915-340-3	H-581-340-3	H-398-155	H-442-250S
1/4-20-3	H-588-440-3	YELLOW	H-407-440-72	H-512-440-3	H-915-440	H-581-440-3	H-398-195	H-442-344S

## Part #

Shuttle Nut T-Bracket part number    **15-01179**

Shuttle Nut Controller Part Number    **15-01245**

# AUTOMATIC BOTTOM FEED TOOLING FOR NUTS

Customer Copy

Captive: C, CS  
PEM: S, SS, CLS, CLSS



## INCH SIZES

FASTENER SIZE	ABFT SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	ABFT ASSEMBLY
NUTS			Included with set			
2-56-0,-1,-2 2-56-3	H-410-250 H-410-250-3	WHITE	H-407-250	H-512-250 H-512-250-3	H-915-250 H-915-250-3	H-908-250 H-908-250-3
4-40-0,-1,-2 4-40-3	H-410-250 H-410-250-3	WHITE	H-407-250	H-512-250 H-512-250-3	H-915-250 H-915-250-3	H-908-250 H-908-250-3
6-32-0,-1,-2 6-32-3	H-410-280 H-410-280-3	RED	H-407-280	H-512-280 H-512-280-3	H-915-280 H-915-280-3	H-908-280 H-908-280-3
8-32-0,-1,-2 8-32-3	H-410-310 H-410-310-3	BLUE	H-407-310	H-512-310 H-512-310-3	H-915-310 H-915-310-3	H-908-310 H-908-310-3
10-32-0,-1,-2 10-32-3	H-410-340 H-410-340-3	GREEN	H-407-340	H-512-340 H-512-340-3	H-915-340 H-915-340-3	H-908-340 H-908-340-3
1/4-20-0,-1,-2 1/4-20-3	H-410-440 H-410-440-3	YELLOW	H-407-440	H-512-440 H-512-440-3	H-915-440 H-915-440	H-700-440 H-700-440-3

## METRIC SIZES

FASTENER SIZE	ABFT SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	ABFT ASSEMBLY
NUTS			Included with set			
M2 & M2.5 -0,-1,-2	H-410-250M	WHITE	H-407-250	H-512-250-M	H-915-250	H-908-250
M3-0,-1,-2	H-410-250M	WHITE	H-407-250	H-512-250-M	H-915-250	H-908-250
M3.5-0,-1,-2	H-410-280M	RED	H-407-280	H-512-280-M	H-915-280	H-908-280
M4-0,-1,-2	H-410-310M	BLUE	H-407-310	H-512-310-M	H-915-310	H-908-310
M5-0,-1,-2	H-410-340M	GREEN	H-407-340	H-512-340-M	H-915-340	H-908-340
M6-0,-1,-2	H-410-440M	YELLOW	H-407-440	H-512-440-M	H-915-440	H-700-440

5. Note: CLA, CA Aluminum nuts are MADE TO ORDER TOOLING (Aluminum nuts are larger than steel nuts)

The Standard tooling will need to be modified for the Aluminum fasteners

# FLUSH NUT SHUTTLE TOOLING

Captive: CFL  
PEM: F

Customer Copy



- Notes: 1. A one-time purchase of a Shuttle Nut Controller, T-Bracket, and Vacuum Generator are required for shuttle nut tooling.  
2. Haeger recommends purchasing a T-Bracket for each shuttle nut mechanism for faster change over and set up times..

## INCH SIZES

FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Shuttle Nut Mechanism	Vacuum Anvil	Lower Tool
Flush Nuts		Included with set				
440-1	H-588-230-1	14-00220	14-00039	H-581-230-1	H-398-084	H-442-230S
440-2	H-588-230-2	14-00220	14-00040	H-581-230-2	H-398-084	H-442-230S
6-32-1	H-588-295-1	14-00221	14-00041	H-581-295-1	H-398-105	H-442-295S
6-32-2	H-588-295-2	14-00221	14-00042	H-581-295-2	H-398-105	H-442-295S
8-32-1	H-588-375-1	14-00222	14-00159	H-581-375-1	H-398-129	H-442-375S
8-32-2	H-588-375-2	14-00222	14-00160	H-581-375-2	H-398-129	H-442-375S
10-32-1	H-588-405-1	14-00223	14-00161	H-581-405-1	H-398-155	H-442-405S
10-32-2	H-588-405-2	14-00223	14-00162	H-581-405-2	H-398-155	H-442-405S

## METRIC SIZES

FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Shuttle Nut Mechanism	Vacuum Anvil	Lower Tool
Flush Nuts		Included with set				
M-3-1	H-588-230M-1	14-00220	14-00039	H-581-230-1	H-398-093	H-442-230S
M-3-2	H-588-230M-2	14-00220	14-00040	H-581-230-2	H-398-093	H-442-230S
M-3.5-1	H-588-295M-1	14-00221	14-00041	H-581-295-1	H-398-114	H-442-295S
M-3.5-2	H-588-295M-2	14-00221	14-00042	H-581-295-2	H-398-114	H-442-295S
M-4-1	H-588-375M-1	14-00222	14-00159	H-581-375-1	H-398-122	H-442-375S
M-4-2	H-588-375M-2	14-00222	14-00160	H-581-375-2	H-398-122	H-442-375S
M-5-1	H-588-405M-1	14-00223	14-00161	H-581-405-1	H-398-161	H-442-405S
M-5-2	H-588-405M-2	14-00223	14-00162	H-581-405-2	H-398-161	H-442-405S

### Part #

**Shuttle Nut T-Bracket #** 15-01179  
**Shuttle Nut Controller Part Number** 15-01245

# TOP FEED SHUTTLE TOOLING FOR STUDS

Customer Copy

Captive: CH, CHS, CHA  
PEM: FH, FHS, FHA



NOTE: T-bracket and vacuum generator are required for shuttle-style tooling. Both are one-time purchases. Specify machine model and serial number when ordering vacuum generator as a retrofit item.

## INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	VACUUM ANVIL	PIVOT ARMS & ADAPTOR	LOWER TOOL
STUDS			Included with set					
4-40 -5 to -16	10-00600	RED	H-309-218	H-524-218	H-525-218	H-388-067	10-00534	H-344-113
6-32 -5 to -20	10-00601	BLUE	H-309-234	H-524-234	H-525-234	H-388-067	10-00535	H-344-139
8-32 -6 to -20	10-00602	GREEN	H-309-250	H-524-250	H-525-250	H-388-093	10-00536	H-344-166
10-32 -6 to -20 10-24-6 to -20	10-00603	YELLOW	H-309-281	H-524-281	H-525-281	H-388-093	10-00538	H-344-191
1/4-20 -8 to -20	10-00604	GRAY	H-309-375	H-524-344	H-525-344	H-388-093	10-00540	H-344-250

## METRIC SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	VACUUM ANVIL	PIVOT ARMS & ADAPTOR	LOWER TOOL
STUDS			Included with set					
M3 -6 to -18	10-00606	RED	H-309-218	H-524-218	H-525-218	H-388-067	10-00534	H-344-121
M3.5 -6 to -30	10-00607	BLUE	H-309-234	H-524-234	H-525-234	H-388-067	10-00535	H-344-140
M4 -10 to -30	10-00608	GREEN	H-309-250	H-524-250	H-525-250	H-388-093	10-00536	H-344-160
M5 -10 to -30	10-00609	YELLOW	H-309-281	H-524-281	H-525-281	H-388-093	10-00538	H-344-199
M6 -12 to -30	10-00610	GRAY	H-309-375	H-524-344	H-525-344	H-388-093	10-00540	H-344-236

Part # \_\_\_\_\_

15-01173 New Dual Rod Shuttle  
 15-01179 New Composite Shuttle Tooling T-Bracket for Suds and Standoffs  
 10-00895 Vacuum Generator for HP6-B  
 10-00212 Vacuum Generator for HP6-C, HP2.5, Non Universal 824  
 10-00142 Vacuum Generator for Non Universal 618  
 10-00789 Vacuum Generator for Universal 618-1, 824-1  
 15-00913 Vacuum Generator for 824-PLUS , 824-Window Touch

# TOP FEED SHUTTLE TOOLING FOR STANDOFFS

Customer Copy

Captive: CFSO, CFSOS, CFSOA  
PEM: SO, SOS, SOA



## INCH SIZES

FASTENER SIZE (Dash length in 1/32" )	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	VACUUM ANVIL	PIVOT ARMS & ADAPTOR	LOWER TOOL
STANDOFFS			Included with set					
4-40 -8 to -34	10-00582	GREEN	H-309-250	H-524-265	H-525-265	H-398-084	10-00537	H-344-169
64-40 -10 to -34	10-00583	PURPLE	H-309-296	H-524-296	H-525-296	H-398-084	10-00539	H-344-216
6-32 -10 to -34	10-00584	PURPLE	H-309-296	H-524-296	H-525-296	H-398-105	10-00539	H-344-216
86-32- 12 to -34	10-00585	GRAY	H-309-375	H-524-375	H-525-375	H-398-105	10-00541	H-344-284
8-32 - 12 to -34	10-00586	GRAY	H-309-375	H-524-375	H-525-375	H-398-129	10-00541	H-344-284
10-32 -12 to -34	10-00587	GRAY	H-309-375	H-524-375	H-525-375	H-398-155	10-00541	H-344-284

## METRIC SIZES

FASTENER SIZE (Dash length in MM )	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	VACUUM ANVIL	PIVOT ARMS & ADAPTOR	LOWER TOOL
STANDOFFS			Included with set					
M3 -6 to -30	10-00591	GREEN	H-309-250	H-524-265	H-525-265	H-398-093	10-00537	H-344-169
3.5M3 -7 to -30	10-00592	PURPLE	H-309-296	H-524-296	H-525-296	H-398-093	10-00539	H-344-216
M4 -8 to -30	10-00593	GRAY	H-309-375	H-524-375	H-525-375	H-398-122	10-00541	H-344-284
M5 -8 to -30	10-00594	GRAY	H-309-375	H-524-375	H-525-375	H-398-161	10-00541	H-344-284

Note: Flight tube is included with pivot arms and adaptor.

Also note: T-bracket and vacuum generator are required for shuttle-style tooling. Both are one-time purchases. Specify machine model and serial number when ordering vacuum generator as a retrofit item.



# TOP FEED SHUTTLE TOOLING FOR BLIND STANDOFFS

Customer Copy

Captive : CFBSO, CFBSOA CFBSOS  
PEM: BSO, BSOA, BSOS



## INCH SIZES

FASTENER SIZE (Dash length in 1/32")	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	VACUUM ANVIL	PIVOT ARMS & ADAPTOR	LOWER TOOL
<b>BLIND STANDOFFS</b>			Included with set					
4-40 -8 to -34	10-00588	GREEN	H-309-250	H-524-265	H-525-265	H-388-067	10-00537	H-344-169
64-40 -10 to -34 6-32 -10 to -34	10-00589	PURPLE	H-309-296	H-524-296	H-525-296	H-388-067	10-00539	H-344-216
86-32 -12 to -34 8-32 -12 to -34 10-32 -12 to -34	10-00590	GRAY	H-309-375	H-524-375	H-525-375	H-388-093	10-00541	H-344-284

## METRIC SIZES

FASTENER SIZE (Dash length in MM)	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	VACUUM ANVIL	PIVOT ARMS & ADAPTOR	LOWER TOOL
<b>BLIND STANDOFFS</b>			Included with set					
M3 -6 to -30	10-00595	GREEN	H-309-250	H-524-265	H-525-265	H-388-067	10-00537	H-344-169
3.5M3 -7 to -30	10-00596	PURPLE	H-309-296	H-524-296	H-525-296	H-388-067	10-00539	H-344-216
M4 -8 to -30	10-00597	GRAY	H-309-375	H-524-375	H-525-375	H-388-093	10-00541	H-344-284
M5 -8 to -30	10-00598	GRAY	H-309-375	H-524-375	H-525-375	H-388-093	10-00541	H-344-284

Note: Flight tube is included with pivot arms and adaptor.

Also note: T-bracket and vacuum generator are required for shuttle-style tooling. Both are one-time purchases. Specify machine model and serial number when ordering vacuum generator as a retrofit item.

# 824 WINDOW TOUCH-3 MULTI-SHUTTLE FLUSH NUT TOOLING

Customer Copy

Captive: CFL  
PEM : F



FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Multi-Shuttle Plate	Vacuum Anvil	Lower Tool
Flush Nuts		Included with set				
440-1	H-688-230-1	14-00220	14-00039	15-02019	H-398-084	H-442-230S
440-2	H-688-230-2	14-00220	14-00040	15-02020	H-398-084	H-442-230S
6-32-1	H-688-295-1	14-00221	14-00041	15-02021	H-398-105	H-442-295S
6-32-2	H-688-295-2	14-00221	14-00042	15-02022	H-398-105	H-442-295S
8-32-1	H-688-375-1	14-00222	14-00159	15-02023	H-398-129	H-442-375S
8-32-2	H-688-375-2	14-00222	14-00160	15-02024	H-398-129	H-442-375S
10-32-1	H-688-405-1	14-00223	14-00161	15-02025	H-398-155	H-442-405S
10-32-2	H-688-405-2	14-00223	14-00162	15-02026	H-398-155	H-442-405S

## METRIC SIZES

Flush Nuts		Included with set				
FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Multi-Shuttle Plate	Vacuum Anvil	Lower Tool
M-3-1	H-688-230M-1	14-00220	14-00039	15-02019	H-398-093	H-442-230S
M-3-2	H-688-230M-2	14-00220	14-00040	15-02020	H-398-093	H-442-230S
M-3.5-1	H-688-295M-1	14-00221	14-00041	15-02021	H-398-114	H-442-295S
M-3.5-2	H-688-295M-2	14-00221	14-00042	15-02022	H-398-114	H-442-295S
M-4-1	H-688-375M-1	14-00222	14-00159	15-02023	H-398-122	H-442-375S
M-4-2	H-688-375M-2	14-00222	14-00160	15-02024	H-398-122	H-442-375S
M-5-1	H-688-405M-1	14-00223	14-00161	15-02025	H-398-161	H-442-405S
M-5-2	H-688-405M-2	14-00223	14-00162	15-02026	H-398-161	H-442-405S

# 824 WINDOW TOUCH-3 MULTI-SHUTTLE NUT TOOLING

Customer Copy

Captive: C, CS  
PEM : S, SS, CLS, CLSS



## INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL ASSY.
<b>NUTS</b>			Included with set					
4-40-0,-1,-2	370-250	WHITE	H-407-250-72	H-512-250	H-915-250	15-01844	H-598-084	H-442-166S
6-32-0,-1,-2	370-280	RED	H-407-280-72	H-512-280	H-915-280	15-01845	H-598-105	H-442-187S
8-32-0,-1,-2	370-310	BLUE	H-407-310-72	H-512-310	H-915-310	15-01846	H-598-129	H-442-213S
10-32-0,-1,-2	370-340	GREEN	H-407-340-72	H-512-340	H-915-340	15-01847	H-598-155	H-442-250S
1/4-20-0,-1,-2	370-440	YELLOW	H-407-440-72	H-512-440	H-915-440	15-01848	H-598-195	H-442-344S

## METRIC SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL ASSY.
<b>NUTS</b>			Included with set					
M3-0,-1,-2	371-250	WHITE	H-407-250-72	H-512-250-M	H-915-250	15-01844	H-598-093	H-442-166S
M3.5-0,-1,-2	371-280	RED	H-407-280-72	H-512-280-M	H-915-280	15-01845	H-598-114	H-442-187S
M4-0,-1,-2	371-310	BLUE	H-407-310-72	H-512-310-M	H-915-310	15-01846	H-598-122	H-442-213S
M5-0,-1,-2	371-340	GREEN	H-407-340-72	H-512-340-M	H-915-340	15-01847	H-598-161	H-442-250S
M6-0,-1,-2	371-440	YELLOW	H-407-440-72	H-512-440	H-915-440	15-01848	H-598-186	H-442-344S

# 824 WINDOW TOUCH-3 MULTI-SHUTTLE NUT TOOLING

Customer Copy

Captive : C, CS  
PEM: S,SS, CLS, CLSS



Dash -3 nuts only  
INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL ASSY.
<b>NUTS</b>			Included with set					
4-40-3	373-250	WHITE	H-407-250-72	H-512-250-3	H-915-250-3	15-01862	H-598-084	H-442-166S
6-32-3	373-280	RED	H-407-280-72	H-512-280-3	H-915-280-3	15-01863	H-598-105	H-442-187S
8-32-3	373-310	BLUE	H-407-310-72	H-512-310-3	H-915-310-3	15-01864	H-598-129	H-442-213S
10-32-3	373-340	GREEN	H-407-340-72	H-512-340-3	H-915-340-3	15-01865	H-598-155	H-442-250S
1/4-20-3	373-440	YELLOW	H-407-440-72	H-512-440-3	H-915-440	15-01866	H-598-195	H-442-344S

Note: Flight tube is included with pivot jaws and shuttle module.

Note: CLA, CA Aluminum nuts are MADE TO ORDER TOOLING (Aluminum nuts are larger than steel nuts)  
The Standard tooling will need to be modified for the Aluminum fasteners

**NOTE: All -3 Nut Tooling for the Window Touch-3  
is Available as Made to Order Tooling**

# 824 WINDOW TOUCH-3 TOP FEED MULTI-SHUTTLE TOOLING FOR STUDS

Customer Copy

Captive: CH, CHS, CHA  
PEM: FH, FHS, FHA



## INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL
STUDS			Included with set					
4-40 -5 to -16	380-218	RED	H-309-218	H-524-218	H-525-218	15-01854	H-388-067	H-344-113
6-32 -5 to -20	380-234	BLUE	H-309-234	H-524-234	H-525-234	15-01855	H-388-067	H-344-139
8-32 -6 to -20	380-250	GREEN	H-309-250	H-524-250	H-525-250	15-01856	H-388-093	H-344-166
10-32 -6 to -20 10-24-6 to -20	380-281	YELLOW	H-309-281	H-524-281	H-525-281	15-01857	H-388-093	H-344-191
1/4-20 -8 to -20	380-344	GRAY	H-309-375	H-524-344	H-525-344	15-01858	H-388-093	H-344-250

## METRIC SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL
STUDS			Included with set					
M3 -6 to -18	381-218	RED	H-309-218	H-524-218	H-525-218	15-01854	H-388-067	H-344-121
M3.5 -6 to -30	381-234	BLUE	H-309-234	H-524-234	H-525-234	15-01855	H-388-067	H-344-140
M4 -10 to -30	381-250	GREEN	H-309-250	H-524-250	H-525-250	15-01856	H-388-093	H-344-160
M5 -10 to -30	381-281	YELLOW	H-309-281	H-524-281	H-525-281	15-01857	H-388-093	H-344-199
M6 -12 to -30	381-344	GRAY	H-309-375	H-524-344	H-525-344	15-01858	H-388-093	H-344-236

Note: Flight tube is included with pivot jaws and shuttle module.

# 824 WINDOW TOUCH-3 TOP FEED MULTI-SHUTTLE TOOLING FOR STANDOFFS

Customer Copy

Captive: CFSO, CFSOS, CFSOA  
PEM: SO, SOS, SOA



## INCH SIZES

FASTENER SIZE (Dash length in 1/32")	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL
STANDOFFS			Included with set					
4-40 -8 to -34	390-265	GREEN	H-309-250	H-524-265	H-525-265	15-01859	H-398-084	H-344-169
64-40 -10 to -34	391-296	PURPLE	H-309-296	H-524-296	H-525-296	15-01860	H-398-084	H-344-216
6-32 -10 to -34	390-296	PURPLE	H-309-296	H-524-296	H-525-296	15-01860	H-398-105	H-344-216
86-32- 12 to -34	391-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-398-105	H-344-284
8-32 - 12 to -34	392-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-398-129	H-344-284
10-32 -12 to -34	390-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-398-155	H-344-284

## METRIC SIZES

FASTENER SIZE (Dash length in MM.)	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL
STANDOFFS			Included with set					
M3 -6 to -30	393-265	GREEN	H-309-250	H-524-265	H-525-265	15-01859	H-398-093	H-344-169
3.5M3 -7 to -30	393-296	PURPLE	H-309-296	H-524-296	H-525-296	15-01860	H-398-093	H-344-216
M4 -8 to -30	393-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-398-122	H-344-284
M5 -8 to -30	394-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-398-161	H-344-284

Note: Flight tube is included with pivot jaws and shuttle module.

# 824 WINDOW TOUCH -3 TOP FEED MULTI-SHUTTLE TOOLING FOR BLIND STANDOFFS

Customer Copy

Captive : CFBSO, CFBSOA CFBSOS  
PEM: BSO, BSOA, BSOS



## INCH SIZES

FASTENER SIZE (Dash length in 1/32")	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL
<b>BLIND STANDOFFS</b>			Included with set					
4-40 -8 to -34	395-265	GREEN	H-309-250	H-524-265	H-525-265	15-01859	H-388-067	H-344-169
64-40 -10 to -34 6-32 -10 to -34	395-296	PURPLE	H-309-296	H-524-296	H-525-296	15-01860	H-388-067	H-344-216
86-32 -12 to -34 8-32 -12 to -34 10-32 -12 to -34	395-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-388-093	H-344-284

## METRIC SIZES

FASTENER SIZE (Dash length in MM.)	SHUTTLE TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	PIVOT JAWS & SHUTTLE MODULE	VACUUM ANVIL	LOWER TOOL
<b>BLIND STANDOFFS</b>			Included with set					
M3 -6 to -30	395-265	GREEN	H-309-250	H-524-265	H-525-265	15-01859	H-388-067	H-344-169
3.5M3 -7 to -30	395-296	PURPLE	H-309-296	H-524-296	H-525-296	15-01860	H-388-067	H-344-216
M4 -8 to -30 M5-8 to -30	395-375	GRAY	H-309-375	H-524-375	H-525-375	15-01861	H-388-093	H-344-284

Note: Flight tube is included with pivot jaws and shuttle module.

# 824-ONE TOUCH-3 SHUTTLE NUT TOOLING

Customer Copy

Captive : C, CS  
PEM: S, SS, CLS, CLSS



## INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	½" DIA. OT LOWER TOOLS
NUTS		Included with set					
4-40-0,-1,-2	350-250	H-407-250-72	H-512-250	H-915-250	15-02346	15-02225	15-02370
6-32-0,-1,-2	350-280	H-407-280-72	H-512-280	H-915-280	15-02347	15-02226	15-02371
8-32-0,-1,-2	350-310	H-407-310-72	H-512-310	H-915-310	15-02348	15-02227	15-02372
10-32-0,-1,-2	350-340	H-407-340-72	H-512-340	H-915-340	15-02349	15-02228	15-02373
1/4-20-0,-1,-2	350-440	H-407-440-72	H-512-440	H-915-440	15-02350	15-02229	15-00654 (.663" DIA.)

**NOTE: All -3 Nut Tooling for the One Touch is Available as Made to Order Tooling .**

## METRIC SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	½" DIA. OT LOWER TOOLS
NUTS		Included with set					
M3-0,-1,-2	351-250M	H-407-250-72	H-512-250-M	H-915-250	15-02346	15-02230	15-02370
M3.5-0,-1,-2	351-280M	H-407-280-72	H-512-280-M	H-915-280	15-02347	15-02231	15-02371
M4-0,-1,-2	351-310M	H-407-310-72	H-512-310-M	H-915-310	15-02348	15-02232	15-02372
M5-0,-1,-2	351-340M	H-407-340-72	H-512-340-M	H-915-340	15-02349	15-02233	15-02373
M6-0,-1,-2	351-440M	H-407-440-72	H-512-440-M	H-915-440	15-02350	15-02234	15-02374 (.663 DIA)

Note: Flight tube is included with pivot jaws and shuttle module.

5. Note: CLA, CA Aluminum nuts are MADE TO ORDER TOOLING (Aluminum nuts are larger than steel nuts) The Standard tooling will need to be modified for the Aluminum fasteners



# 824 ONE TOUCH-3 SHUTTLE TOOLING FOR *STUDS*

Captive : CH, CHS, CHA  
PEM: FH, FHS, FHA

Customer Copy



## INCH SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	½" DIA. OT LOWER TOOLS
STUDS		Included with set					
4-40 -5 to -16	352-218	H-309-218-72	H-524-218	H-525-218	15-02362	15-02216	15-02375
6-32 -5 to -20	352-234	H-309-234-72	H-524-234	H-525-234	15-02363	15-02216	15-02376
8-32 -5 to -20	352-250	H-309-250-72	H-524-250	H-525-250	15-02364	15-02216	15-02377
10-32 -6 to -20	352-281	H-309-281-72	H-524-281	H-525-281	15-02365	15-02216	15-02378
10-24-6 to -20							
1/4-20 -8 to -20	352-344	H-309-375-72	H-524-344	H-525-344	15-02366	15-02216	15-02379 (.663" DIA)

## METRIC SIZES

FASTENER SIZE	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	½" DIA. OT LOWER TOOLS
STUDS		Included with set					
M3 -6 to -18	353-218M	H-309-218-72	H-524-218	H-525-218	15-02362	15-02216	15-02380
M3.5 -6 to -30	353-234M	H-309-234-72	H-524-234	H-525-234	15-02363	15-02216	15-02381
M4 -8 to -30	353-250M	H-309-250-72	H-524-250	H-525-250	15-02364	15-02216	15-02382
M5 -10 to -30	353-281M	H-309-281-72	H-524-281	H-525-281	15-02365	15-02216	15-02383
M6 -12 to -30	353-344M	H-309-375-72	H-524-344	H-525-344	15-02366	15-02216	15-02384 (.663" DIA)

Note: Flight tube is included with pivot jaws and shuttle module.

# 824 ONE TOUCH-3 SHUTTLE TOOLING FOR *STANDOFFS*

Captive : CFSO, CFSOS, CHSOA  
PEM: SO , SOS, SOA

Customer Copy



## INCH SIZES

FASTENER SIZE (Dash length in 1/32")	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	1/2" DIA. OT LOWER TOOLS
STANDOFFS		Included with set					
4-40 -8 to -34	354-265	H-309-250-72	H-524-265	H-525-265	15-02359	15-02221	15-02385
64-40 -10 to -34	360-296	H-309-296-72	H-524-296	H-525-296	15-02360	15-02221	15-02386
6-32 -10 to -34	354-296	H-309-296-72	H-524-296	H-525-296	15-02360	15-02222	15-02386
86-32- 12 to -34	354-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02222	15-02387
8-32 - 12 to -34	355-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02223	15-02387
10-32 -12 to -34	356-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02224	15-02387

## METRIC SIZES

FASTENER SIZE (Dash length in MM)	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	1/2" DIA. OT LOWER TOOLS
STANDOFFS		Included with set					
M3 -6 to -30	357-265	H-309-250-72	H-524-265	H-525-265	15-02359	15-02217	15-02385
3.5M3 -7 to -30	358-296	H-309-296-72	H-524-296	H-525-296	15-02360	15-02217	15-02386
M4 -8 to -30	358-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02219	15-02387
M5 -8 to -30	359-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02220	15-02387

Note: Flight tube is included with pivot jaws and shuttle module.

# **824 ONE TOUCH-3** **SHUTTLE TOOLING** **FOR BLIND STANDOFFS**

Customer Copy

Captive : CFBSO, CFBSOA, CFBSOS,  
PEM: BSO, BSOA, BSOS



## INCH SIZES

FASTENER SIZE (Dash length in 1/32")	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	1/2" DIA. OT LOWER TOOLS
<b>BLIND STANDOFFS</b>		Included with set					
4-40 -8 to -34	361-265	H-309-250 -72	H-524-265	H-525-265	15-02359	15-02216	15-02385
64-40 -10 to -34 6-32 -10 to -34	362-296	H-309-296-72	H-524-296	H-525-296	15-02360	15-02216	15-02386
86-32 -12 to -34 8-32 -12 to -34 10-32 -12 to -34	363-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02216	15-02387

## METRIC SIZES

FASTENER SIZE (Dash length in MM)	SHUTTLE TOOLING SET	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	824-OT-3 SHUTTLE PLATE ASSY	LARGE VACUUM TIP (.663 Dia.)	1/2" DIA. OT LOWER TOOLS
<b>BLIND STANDOFFS</b>		Included with set					
M3 -6 to -30	361-265	H-309-250-72	H-524-265	H-525-265	15-02359	15-02216	15-02385
3.5M3 -7 to -30	362-296	H-309-296-72	H-524-296	H-525-296	15-02360	15-02216	15-02386
M4 -8 to -30 M5 -8 to -30	363-375	H-309-375-72	H-524-375	H-525-375	15-02361	15-02216	15-02387

Note: Flight tube is included with pivot jaws and shuttle module.

# 824 ONE TOUCH-3 MULTI-SHUTTLE FLUSH NUT TOOLING

Customer Copy

Captive: CFL  
PEM : F



FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Multi-Shuttle Plate Assy.	Vacuum Tip	Lower Tool
Flush Nuts		Included with set				
440-1	H-788-230-1	14-00220	14-00039	15-02351	15-02221	15-02670
440-2	H-788-230-2	14-00220	14-00040	15-02352	15-02221	15-02670
6-32-1	H-788-295-1	14-00221	14-00041	15-02353	15-02222	15-02671
6-32-2	H-788-295-2	14-00221	14-00042	15-02354	15-02222	15-02671
8-32-1	H-788-375-1	14-00222	14-00159	15-02355	15-02223	15-02672
8-32-2	H-788-375-2	14-00222	14-00160	15-02356	15-02223	15-02672
10-32-1	H-788-405-1	14-00223	14-00161	15-02357	15-02224	15-02673
10-32-2	H-788-405-2	14-00223	14-00162	15-02358	15-02224	15-02373

## METRIC SIZES

Flush Nuts		Included with set				
FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Multi-Shuttle Plate	Vacuum Tip	Lower Tool
M3-1	H-788-230M-1	14-00220	14-00039	15-02351	15-02217	15-02670
M3-2	H-788-230M-2	14-00220	14-00040	15-02352	15-02217	15-02670
M3.5-1	H-788-295M-1	14-00221	14-00041	15-02353	15-02218	15-02671
M3.5-2	H-788-295M-2	14-00221	14-00042	15-02354	15-02218	15-02671
M4-1	H-788-375M-1	14-00222	14-00159	15-02355	15-02219	15-02672
M4-2	H-788-375M-2	14-00222	14-00160	15-02356	15-02219	15-02672
M5-1	H-788-405M-1	14-00223	14-00161	15-02357	15-02220	15-02673
M5-2	H-788-405M-2	14-00223	14-00162	15-02358	15-02220	15-02373