

Automatic Tooling Charts

August 5, 2010 – Customer Copy



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

Distributor 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 NUT TOOLING SET	COLOR CODE	FLIGHT TUBE	ORIENTATION MODULE	SINGULATION MODULE	Shuttle Nut Mech.	VACUUM ANVIL	LOWER TOOL ASSY.
NUTS			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.
NUTS			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

Distributor 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

Distributor 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

Distributor 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

Flush Nuts	Complete Tooling Set	Flight Tube	Multi-Module	Shuttle Nut Mechanism	Vacuum Anvil	Lower Tool
FASTENER SIZE	Complete Tooling Set	Flight Tube	Multi-Module	Shuttle Nut Mechanism	Vacuum Anvil	Lower Tool
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

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

Part #
15-01179
15-01245

TOP FEED SHUTTLE TOOLING FOR STUDS

Distributor 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 -25	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

Distributor 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	ORANGE	H-309-410	H-524-375	H-525-375	H-398-105	10-00541	H-344-284
8-32 - 12 to -34	10-00586	ORANGE	H-309-410	H-524-375	H-525-375	H-398-129	10-00541	H-344-284
10-32 -12 to -34	10-00587	ORANGE	H-309-410	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	ORANGE	H-309-410	H-524-375	H-525-375	H-398-122	10-00541	H-344-284
M5 -8 to -30	10-00594	ORANGE	H-309-410	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

Distributor 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
BLIND STANDOFFS			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	ORANGE	H-309-410	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
BLIND STANDOFFS			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	ORANGE	H-309-410	H-524-375	H-525-375	H-388-093	10-00541	H-344-284
M5 -8 to -30	10-00598	ORANGE	H-309-410	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

Distributor 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

Distributor 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.
NUTS			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.
NUTS			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

Distributor 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.
NUTS			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

Distributor 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 -25	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

Distributor 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	ORANGE	H-309-410	H-524-375	H-525-375	15-01861	H-398-105	H-344-284
8-32 - 12 to -34	392-375	ORANGE	H-309-410	H-524-375	H-525-375	15-01861	H-398-129	H-344-284
10-32 -12 to -34	390-375	ORANGE	H-309-410	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	ORANGE	H-309-410	H-524-375	H-525-375	15-01861	H-398-122	H-344-284
M5 -8 to -30	394-375	ORANGE	H-309-410	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

Distributor 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
BLIND STANDOFFS			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	ORANGE	H-309-410	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
BLIND STANDOFFS			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	ORANGE	H-309-410	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

Distributor 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

Distributor 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 10-24-6 to -20	352-281	H-309-281-72	H-524-281	H-525-281	15-02365	15-02216	15-02378
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 -25	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

Distributor 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.)	½" 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-309-410	H-524-375	H-525-375	15-02361	15-02222	15-02387
8-32 - 12 to -34	355-375	H-309-410	H-524-375	H-525-375	15-02361	15-02223	15-02387
10-32 -12 to -34	356-375	H-309-410	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.)	½" 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-309-410	H-524-375	H-525-375	15-02361	15-02219	15-02387
M5 -8 to -30	359-375	H-309-410	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

Distributor 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
BLIND STANDOFFS		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-309-410	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
BLIND STANDOFFS		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-309-410	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

Distributor 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