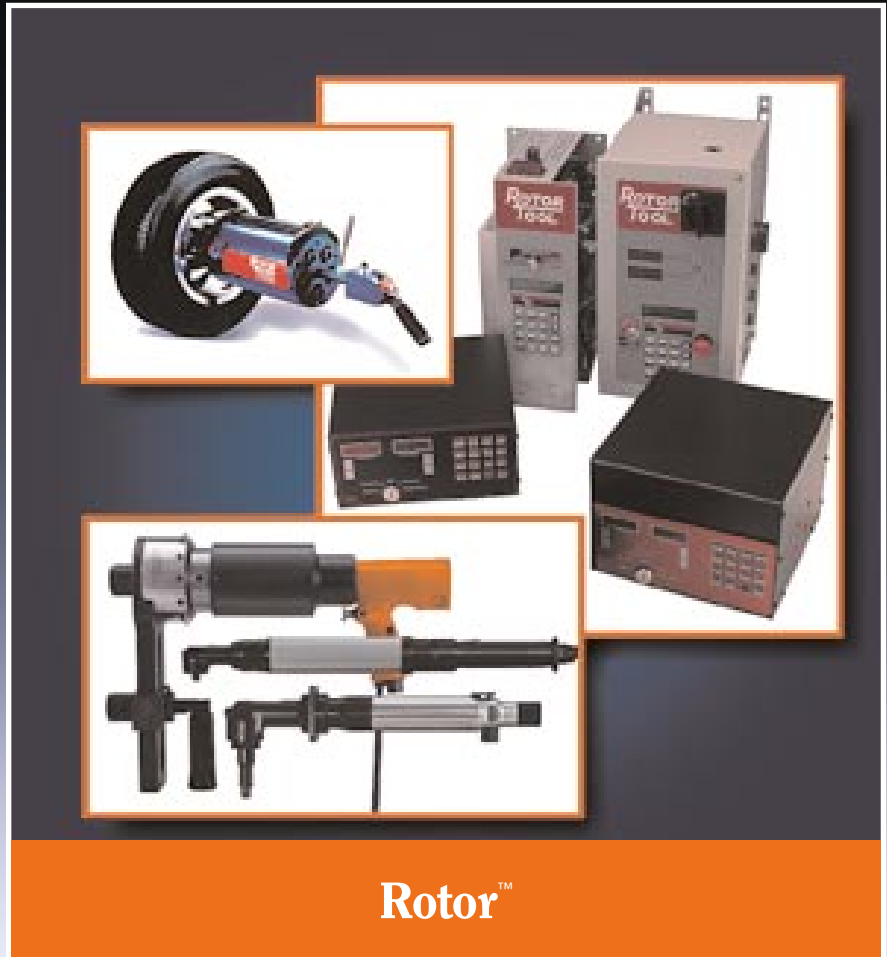


CooperTools



Rotor™

**FIXTURED & PORTABLE
ASSEMBLY TOOLS**

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EQUIPMENT LTD

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Pneumatic & Hydraulic Tool Distributor

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COOPER Tools

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CooperTools Division has attained ISO 9001 Quality System Certification for eight of our facilities. The driving force behind the implementation of the Quality System is the commitment “to provide our customers with the **best value delivered** by offering only products and services **that meet or exceed their expectations**.”



Lexington, South Carolina



Dayton, Ohio



Hicksville, Ohio



Springfield, Ohio



Westhausen, Germany



Ozoir-la-Ferrière Cedex, France



Houston, Texas

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Model Number System

Rotor Tool Products



SERIES:

ELECTRIC:

- E Hall Hand-Held
- ES Hall Pistol
- ESW Hall Hand-Held Swivel
- ER Resolver Hand-Held
- ERSW Resolver Hand-Held Swivel
- EM Hall Fixtured

- EMR Resolver Fixtured
- ETA Hall Automatic Tube Nut
- ERTA Resolver Automatic Tube Nut
- ETN Hall Semi-Automatic Tube Nut
- ERTN Resolver Semi-Automatic Tube Nut

PNEUMATIC:

- N Hand Held
- NSW Hand Held - Swivel Bar
- M Fixtured
- MS Fixtured (Streamlined)
- TA Automatic Tube Nut
- TSA Semi-Automatic Tube Nut
- S Pistol - Fixed Bar
- SW Pistol - Swivel Bar

MOTOR:

PNEUMATIC:

- 52
- 54
- 59
- 100
- 101

ELECTRIC:

- 115
- 130
- 150
- 225

START:

- L Lever Start
- P Pistol Grip
- AC Auto Cycle

ANGLE HEAD EXTENSION:

nX n = 5, 6, or 12 inch extension

MULTIPLIER:

M In-Line Multiplier

TORQUE RATING:

XXXX Tool Torque Rating in Ft.Lbs.
Note: 59 Series Tools in Nm

ATTACHMENTS:

- MXXXX Angle Head Multiplier
- MRXXXX Angle Head Multiplier
- BWXXXX Blade Wrench
- XXXX = Torque in Ft.Lbs. after attachment

SELECTORK:

ST Selectork



ROTATION:

- R Reversible
- O Opposite Rotation

ANGLE HEAD:

- A Standard
- AH Heavy Duty
- AHH Extra Heavy Duty
- AA Indexable
- AAH Indexable Heavy Duty
- AX Extended
- AHX Extended Heavy Duty

REACTION DEVICE:

- Y Bar or Plate

OUTPUT:

- S Sliding Spindle
- SX Extended Sliding Spindle
- FO Offset Head
- FOX Extended Offset
- S2 Two Inch Retraction

PRECISION MOTOR:

- P 101

AIR SHUT-OFF TYPE:

- T Pneu-Tork Shut-Off
- TC Speed Torque Shut Off
- K Clutch

HOLD AND DRIVE:

HD Hold-N-Drive Head

TORQUE SELECT:

TS 8 Position Selector Switch

JED LIGHTS:

V Negative Common
VP Positive Common

SOLENOID:

CL Closed Loop Electronic Torque Control

ENCODER:

EE Double Angle Encoder

TORQUE TRANSDUCER:

- GG Isolated Transducer
- G Reaction Transducer
- CG Canned Reaction Transducer
- B Blank Transducer

TORQUE SIGNALS:

TS Torque Signal



Warranty

Cooper warrants products and parts sold by it, insofar as they are of its own manufacture, against defects of material and workmanship, under normal use and service in accordance with its written instructions, recommendations, and ratings for installation, operation, maintenance, and service of products, for a period of **ONE YEAR FROM THE DATE OF INITIAL USE, BUT IN NO EVENT SHALL THE WARRANTY EXCEED 24 MONTHS FROM DATE OF DELIVERY TO DISTRIBUTOR.**

Proof of Purchase with shipment date must be furnished by the user to validate the warranty. This warranty applies only to products manufactured by Cooper and specifically excludes products manufactured by others. Products not manufactured by Cooper are warranted only to the extent and in the manner warranted to Cooper by the manufacturer

and then only to the extent Cooper is able to enforce such warranty. Cooper's warranty with respect to products manufactured by it is limited to the repair or replacement, as Cooper may elect, of any defective part regarding which the Distributor has given 5 days written notice from the discovery of such defect. Installation and transportation costs are not included. Cooper shall have the option of requiring the return to it of the defective material, transportation prepaid, for inspection. No allowance will be made for repairs without Cooper's approval. **COOPER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, AND HEREBY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

Lubrication Products

CooperTools' products are classified as non-hazardous manufactured items, defined in the OSHA 1910.1200 Hazard Communication Standard as "Articles". These products, under conditions of normal use, do not release or cause exposure to a hazardous chemical.

Under normal conditions of use, lubrication products sold separately for or used within these tools should not cause an exposure hazard. Refer to the Material Safety Data Sheet (M.S.D.S.) for Safety and Disposal Information. M.S.D.S. sheets are available upon request from CooperTools.

Cooper is also aware of, and complies with, the

provisions of section 611 amendments to the Clean Air Act of 1990. No ozone depleting chemicals have been used in the manufacture of our products.

If you resell or distribute these products, you have the responsibility for ensuring that the Material Safety Data Sheets are provided to the purchaser.

Proper lubrication is essential to the economical operation of pneumatic and electric tools. Rotor Tools perform better and their life is extended by using the recommended lubricants. All lubricants that are listed in the accessory section of this catalog have undergone extensive testing and are recommended for use with CooperTools products.

Fastener Selection

The suggested fasteners listed in this catalog are determined by matching a tool's maximum rated load to Society of Automotive Engineers (SAE) Grade 5 and International Organization of Standardization (ISO) Grade 9.8 fasteners. The torque capabilities for SAE Grade 5 fasteners are from SAE Manual, SAE J429 (Mechanical and Material Requirement for Externally Threaded Fasteners). The torque capabilities for ISO Grade 9.8 fasteners are from ISO 898-1 (Mechanical Properties of Fasteners). All values selected are based on lubricated fasteners.

The suggested fasteners listed in this catalog are advisory only, and CooperTools recommends that you further consult other technical references before final tool selection. Reliance on the accuracy of this catalog data for any purpose by anyone is at the sole risk of that person. CooperTools is not responsible for any loss, claim, or damage arising from improper tool selection.

The torque values listed under the headings "TORQUE" are tested on an ISO 5393 soft joint rate test fixture unless otherwise stated by a special note.

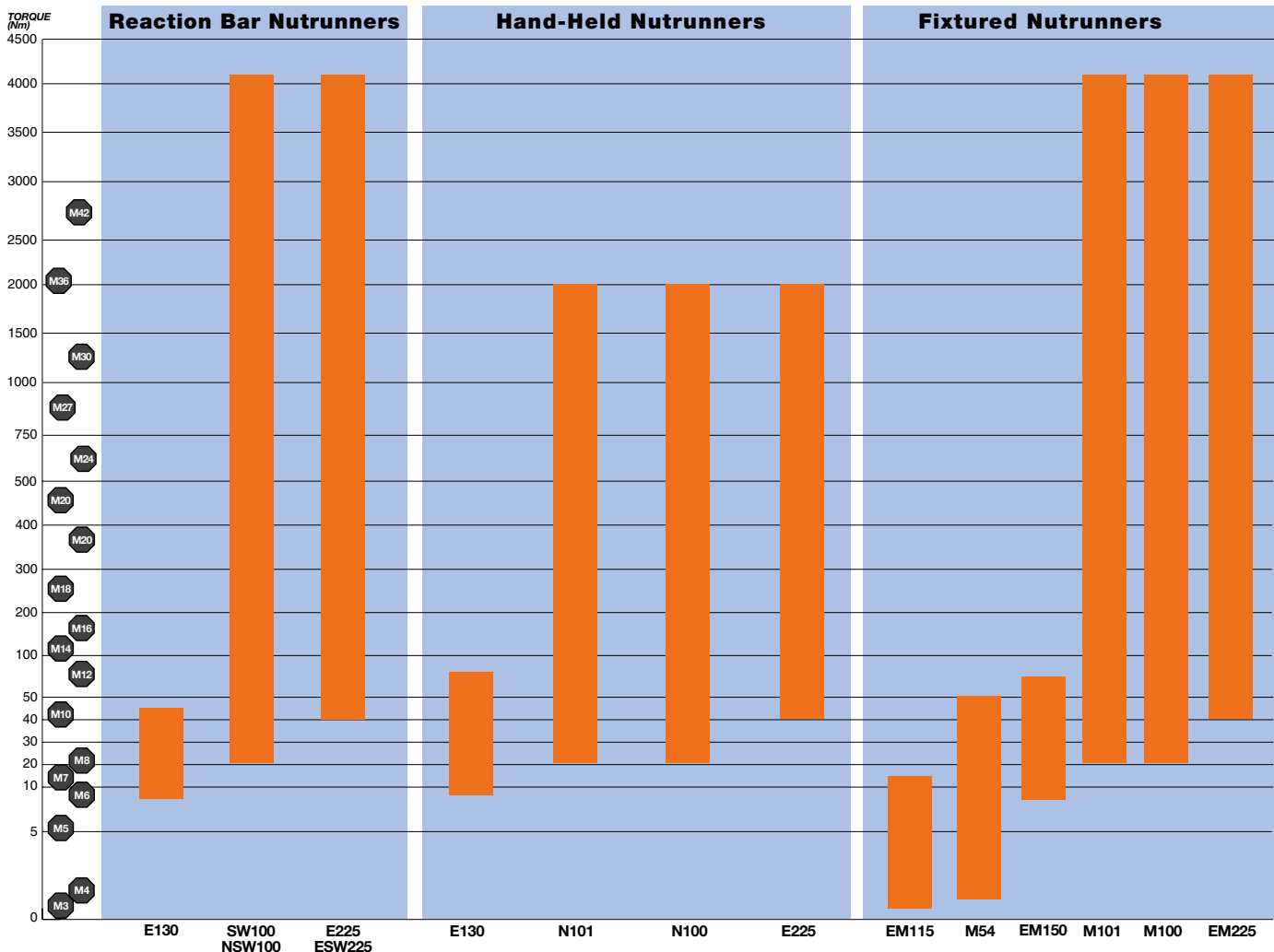
Rotor Tool Overview

ROTOR TOOL®

The Rotor Tool family of tools is one of the most diverse in the portable tool industry. With a broad selection of control mechanisms and motors, this offering covers a wide range of torques and speeds. Coupled with a diverse line of attachments and throttles, these tools are suitable for an indefinite number of applications.

Tools that perform

Improving production rates and decreasing costs are critical to the success of today's manufacturer. Rotor Tool assembly tools have been specially designed to run down the broadest range of threaded fasteners, while providing accurate torque. Whether an application is a "soft" or "hard" joint, these tools are fast, consistent and durable. When it comes to performance and reliability, there is no doubt as to why manufacturers around the world have come to rely on Rotor Tool.



Tools of the highest quality

When we say our tools are built well, we really mean it. CooperTools manufacturing processes are ISO 9001 certified...that means the Rotor Tool brand is manufactured to the highest standard.



to maximize control, ease of handling and tool balance. Special attention has been placed on housing grips. Housings are shaped to fit hand contours, and many have additional comfort grips to isolate the operator from temperature and vibration.

Tools that are flexible

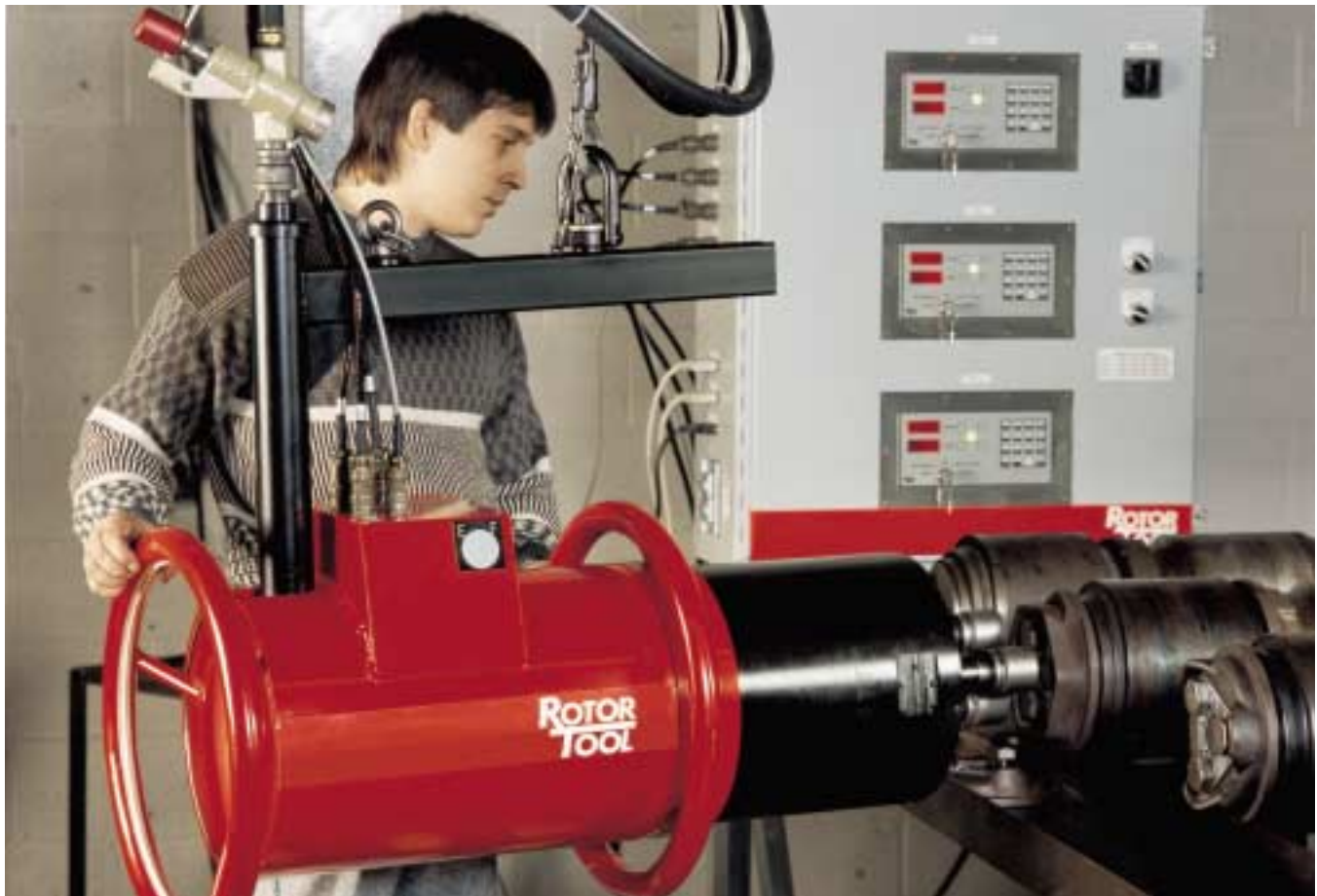
Many of the inline and pistol grip nutrunners are available with an array of square drives and extensions. Likewise, many of the angle head tools are available with optional square drive sizes. Both in-line and right angle tools are available with a variety of sliding spindle configurations for multiple spindle applications. Bit and finder combinations, insert bit holders, socket adapters and many other accessories are available.

Tools that work with the operator

It is simple...give an operator a tool that is comfortable to use and the operator will work better. That is why the science of human engineering is integral in the design of every Rotor Tool. The weight and shape of a particular tool are carefully designed

Tools that run quietly

Special attention is given to the design of the exhaust system of every air tool. The air motor noise is efficiently muffled to insure that the user will have the most quiet working conditions possible. Electric tools offer even quieter operation.



Reaction Bar Nutrunners

ROTOR TOOL®

Proven Driving Performance

Rotor Tool Nutrunners are indeed proven performers. Ease of use, incredible durability and ease of maintenance have made these tools the standard by which all others are measured.

All Rotor Tools are tested in accordance with international standards such as ISO 5393 to insure 100% compliance with the demanding quality specifications of CooperTools.

Powerful Torque Output

All Rotor Tool Nutrunners are designed to provide the highest torque at the highest speed possible. Coupled with a diverse control selection, a wide range of drive options and clean operation, these tools offer manufacturers the highest productivity.



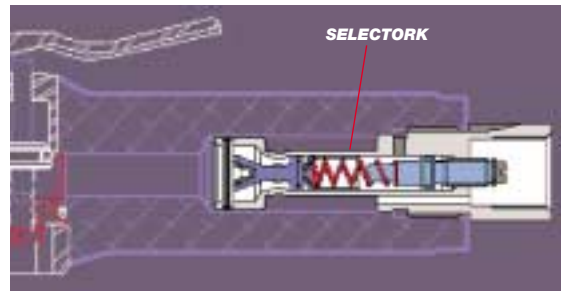
Selectork

The best way to adjust the torque output from either stall or shut-off type nutrunners, is to regulate the air pressure until you obtain the desired average torque. This is



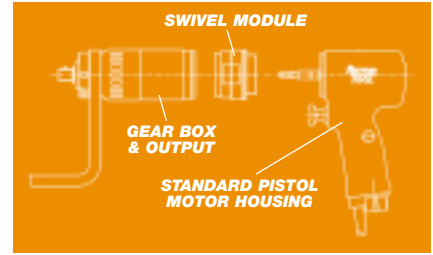
usually accomplished with large regulators mounted at the start of the air hose. This works fine on tools that never leave that air hose. If tools regularly are disconnected for security, P.M., or process changes, this may pose a problem insuring that they get back to that air hose and the correct running pressure. By keeping the pressure regulator with the tool, we can make the correct adjustment and move the tool from air line to air line.

An on-board regulator also allows tools to be adjusted independently of the main line regulator, avoiding potential conflicts with other equipment fed by the same main. Additionally, an on-board regulator provides consistent, constant torque output as it compensates for fluctuating line pressure conditions.



The "Selectork" is a small pressure regulator that takes the place of the inlet bushing in the handle of many Rotor Tool pistol and lever style nutrunners. Because of the Selectork's small size there is a limited pressure adjustment range of from 60 to 90 psi. To order this option on Rotor Tool 100 and 101 series stall or air shut-off nutrunners,

place the letters "ST" at the end of the model number.



Swivels

Reaction Bar Nutrunners have been widely accepted throughout the industry since the early nineteen seventies. These tools have replaced many impact wrenches because of their quiet, vibration free operation and increased torque accuracy. One problem with these tools was that if used on more than one fastener, the reaction point often changed. This required the operator to either

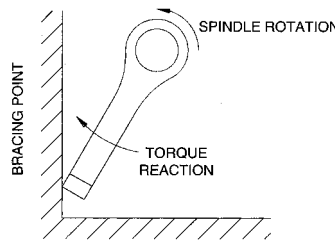
reposition the reaction bar or accept an awkward handle position.

Motors produce relatively low torque and high speed. The gear case reduces the speed and multiplies the torque. By placing a swivel

mechanism between the motor and the gear case we isolate the handle from the majority of the torque. This allows the torque bar to swing relative to the handle and automatically find the reaction point. This simple concept saves time, makes for better ergonomics and improves worker safety.



Torque Reaction Bar With Locking Spline
The Torque Reaction Bar is mechanically secured in place and is easily adjustable to different positions.



Torque Reaction Opposes Spindle Rotation

How To Set Torque Reaction Bar

1. Adjust torque bar after bending to desired angle.
2. Brace bar against the work opposite direction of spindle rotation.

Reaction Bar Nutrunners

Pneumatic Non-Instrumented Pistol Nutrunners

ROTOR TOOL®

Torque Range:
21 – 4068 Nm
16 – 3000 Ft. Lbs.

Bolt Size:
M8 – M42
5/16" – 1 3/4"

- 360° positionable reaction bar
- Reversible and non-reversible
- Trigger

DOBCO

EQUIPMENT LTD



Model Number	Bolt Size		Square Drive (in)	Torque		Free RPM	Length		Weight (w/o reaction bar)		Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg	
SWING BAR - REVERSIBLE - STALL TORQUE											
SW100PRY22	3/8	M8	1/2	22	30	675	9.81	249	6.12	2.78	46185040
SW100PRY39	7/16	M10	1/2	39	53	450	9.81	249	6.12	2.78	46185002
SW100PRY60	1/2	M12	1/2	60	81	310	9.81	249	6.12	2.78	461850100
SW100PRY80	9/16	M12	1/2	80	108	220	9.81	249	6.12	2.78	461850102
SW100PRY100	9/16	M14	3/4	100	136	165	10.81	274	8.0	3.6	46185079
SW100PRY135	5/8	M14	3/4	135	183	120	10.81	274	8.0	3.6	46185076
SW100PRY220	3/4	M20	3/4	220	298	70	10.81	274	8.0	3.6	46185014
SW100PRY345	7/8	M20	3/4	345	468	40	11.31	287	8.38	3.8	46185089
SW100PRY500	1	M22	1	500	678	27	14.27	362	14.3	6.49	461850161
SW100PRY615	1 1/8	M24	1	615	834	22	14.27	362	14.3	6.49	461850164
SW100PRY980	1 1/4	M27	1	980	1379	14	14.27	362	14.3	6.49	461850177
SW100PRY1300	1 3/8	M30	1	1300	1763	10	14.27	362	14.3	6.49	461850163
SW100PRYBM2550*	1 3/4	M42	1 1/2	2550	3458	5	15.25	387	32.0	14.5	46555003
SWING BAR - NON - REVERSIBLE - STALL TORQUE											
SW100PY16	5/16	M8	1/2	16	21	1600	9.18	233	6.0	2.72	461750150
SW100PY28	3/8	M8	1/2	28	38	950	9.81	249	6.12	2.78	46175025
SW100PY48	7/16	M10	1/2	48	65	565	9.81	249	6.12	2.78	46175002
SW100PY75	1/2	M12	1/2	75	102	385	9.81	249	6.12	2.78	461750152
SW100PY115	5/8	M14	1/2	115	156	225	9.81	249	6.12	2.78	461750157
SW100PY170	5/8	M16	3/4	170	230	150	10.81	274	8.0	3.6	46175021
SW100PY210	3/4	M16	3/4	210	285	125	10.81	274	8.0	3.6	46175015
SW100PY280	7/8	M20	3/4	280	380	90	10.81	274	8.0	3.6	46175014
SW100PY445	1	M22	3/4	445	603	55	11.31	287	8.38	3.8	46175048
SW100PY620	1 1/8	M24	1	620	841	37	14.27	362	14.3	6.49	461750211
SW100PY1035	1 1/4	M27	1	1035	1403	22	14.27	362	14.3	6.49	461750213
SW100PY1500	1 1/2	M36	1	1500	2034	15	14.27	362	14.3	6.49	461750215
SW100PYBM3000*	1 3/4	M42	1 1/2	3000	4068	7	15.25	387	32.0	14.5	46325009

• Slave drive reaction bar standard

STANDARD EQUIPMENT

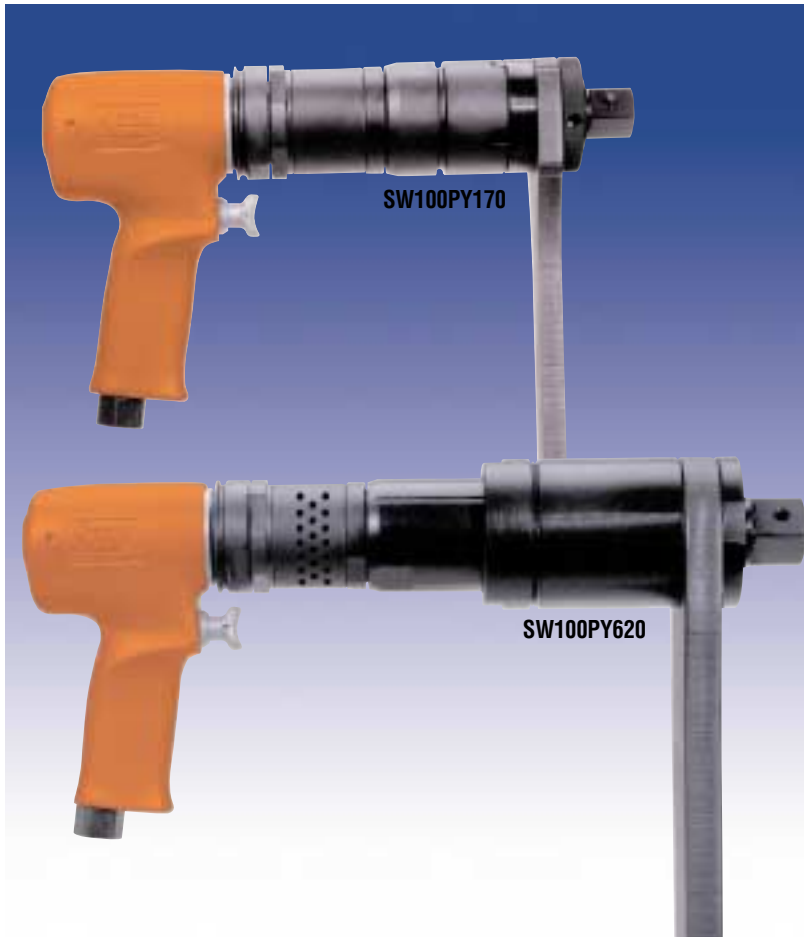
Pigtail reverse throttle on reversible models
Torque reaction bar

OPTIONAL EQUIPMENT

Suspension bails - see page 16
Alternate output spindles
Slave square drive reaction bars - see page 16
Transducerized models

Reaction Bar Nutrunners

Pneumatic Non-Instrumented Pistol Nutrunners With Selectork



ROTOR TOOL®

Torque Range:
65 – 4068 Nm
48 – 3000 Ft. Lbs.

Bolt Size:
M10 – M42
7/16" – 1 3/4"

- 360° positionable reaction bar
- Reversible and non-reversible
- Trigger

DOBCO
EQUIPMENT LTD

Model Number	Bolt Size		Square Drive (in)	Torque		Free RPM	Length		Weight (w/o reaction bar)		Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg	
SWING BAR - REVERSIBLE - SELECTORK											
SW100PRY100ST	9/16	M14	3/4	100	136	165	10.81	274	8.0	3.6	46185038
SW100PRY135ST	5/8	M14	3/4	135	183	120	10.81	274	8.0	3.6	46185039
SW100PRY220ST	3/4	M20	3/4	220	298	70	10.81	274	8.0	3.6	46185037
SW100PRY345ST	7/8	M20	3/4	345	468	40	11.31	287	8.38	3.8	461850203
SW100PRY500ST	1	M22	1	500	678	27	14.27	362	14.3	6.49	461850169
SW100PRY615ST	1 1/8	M24	1	615	834	22	14.27	362	14.3	6.49	461850133
SW100PRY980ST	1 1/4	M27	1	980	1379	14	14.27	362	14.3	6.49	461850166
SW100PRY1300ST	1 3/8	M30	1	1300	1763	10	14.27	362	14.3	6.49	461850226
SW100PRYBM2550ST•	1 3/4	M42	1 1/2	2550	3458	5	15.25	387	32.0	14.5	46555006
SWING BAR - NON - REVERSIBLE - SELECTORK											
SW100PY48ST	7/16	M10	1/2	48	65	565	9.81	249	6.12	2.78	46175052
SW100PY75ST	1/2	M12	1/2	75	102	385	9.81	249	6.12	2.78	461750176
SW100PY115ST	5/8	M14	1/2	115	156	225	9.81	249	6.12	2.78	461750179
SW100PY170ST	5/8	M16	3/4	170	230	150	10.81	274	8.0	3.6	46175085
SW100PY210ST	3/4	M16	3/4	210	285	125	10.81	274	8.0	3.6	46175078
SW100PY280ST	7/8	M20	3/4	280	380	90	10.81	274	8.0	3.6	46175080
SW100PY445ST	1	M22	3/4	445	603	55	11.31	287	8.38	3.8	46175098
SW100PY620ST	1 1/8	M24	1	620	841	37	14.27	362	14.3	6.49	461750232
SW100PY1035ST	1 1/4	M27	1	1035	1403	22	14.27	362	14.3	6.49	461750225
SW100PY1500ST	1 1/2	M36	1	1500	2034	15	14.27	362	14.3	6.49	461750226
SW100PYBM3000ST•	1 3/4	M42	1 1/2	3000	4068	7	15.25	387	32.0	14.5	46325084

• Slave drive reaction bar standard

STANDARD EQUIPMENT

Pigtail reverse throttle on reversible models
Torque reaction bar
Selectork built-in regulator

OPTIONAL EQUIPMENT

Suspension bails - see page 16
Alternate output spindles
Slave square drive reaction bars - see page 16
Transducerized models

Reaction Bar Nutrunners

Pneumatic Instrumented Pistol Nutrunners



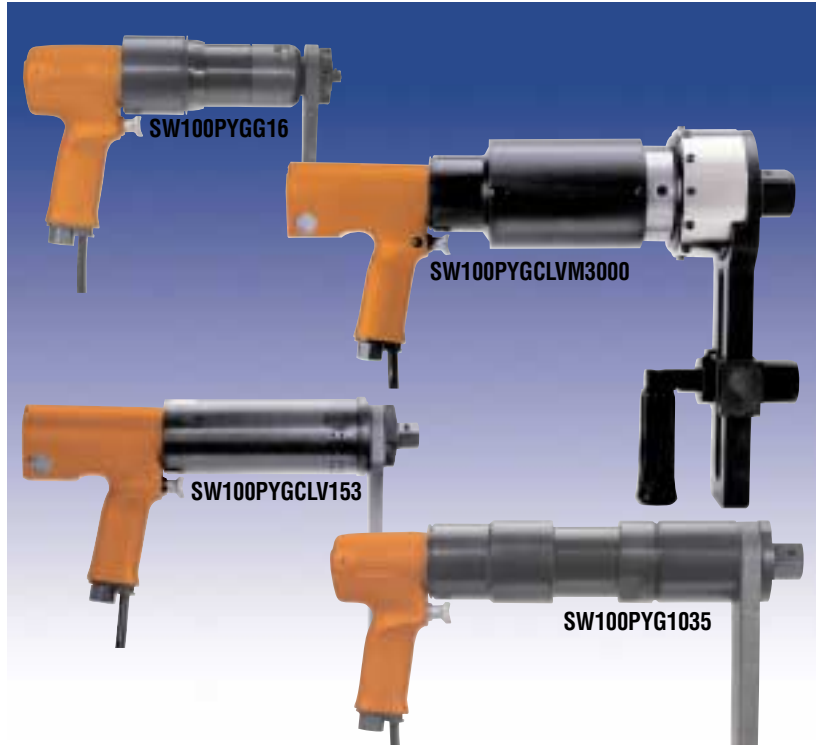
Torque Range:

23 – 4068 Nm
16 – 3000 Ft. Lbs.

Bolt Size:

M8 – M42
7/16" – 1 3/4"

- 360° positionable reaction bar
- Non-reversible
- Trigger



Model Number	Bolt Size		Square Drive (in)	Torque		Free RPM	Length		Weight (w/o reaction bar)		Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg	
SWING BAR - NON - REVERSIBLE - TRANSDUCERIZED - STALL TORQUE											
SW100PYGG16	7/16	M8	3/8	16	23	1680	9.09	231	5.62	2.55	46305025
SW100PYGG28	3/8	M8	1/2	28	38	950	9.72	247	5.87	2.66	46305016
SW100PYGG48	7/16	M10	1/2	48	65	565	9.72	247	5.87	2.66	46305018
SW100PYGG75	1/2	M12	1/2	75	102	385	9.72	247	5.87	2.66	46305020
SW100PYGG115	5/8	M14	1/2	115	156	225	9.72	247	5.87	2.66	46305023
SW100PYCG170	5/8	M16	3/4	170	230	150	10.81	274	8.7	3.9	46505053
SW100PYCG210	3/4	M16	3/4	210	285	125	10.81	274	8.7	3.9	46505054
SW100PYCG280	7/8	M20	3/4	280	380	90	10.81	274	8.7	3.9	46505055
SW100PYCG445	1	M22	3/4	445	603	55	11.18	284	9.0	4.1	46505057
SW100PYG620	1 1/8	M24	1	620	841	37	15.5	394	16.3	7.4	46505059
SW100PYG1035	1 1/4	M27	1	1035	1403	22	15.5	394	16.3	7.4	46505061
SW100PYG1500	1 1/2	M36	1	1500	2034	15	15.5	394	16.3	7.4	46505063
SW100PYGM3000*Δ	1 3/4	M42	1 1/2	3000	4068	7	15.25	387	32.0	14.5	46325008
SWING BAR - NON - REVERSIBLE - ELECTRONIC TORQUE CONTROL											
SW100PYGGCLV25	3/8	M8	1/2	25	34	950	13.65	347	7.6	3.4	46465051
SW100PYGGCLV43	7/16	M10	1/2	43	58	565	13.65	347	7.6	3.4	46465053
SW100PYGGCLV58	1/2	M12	1/2	58	78	425	13.65	347	7.6	3.4	46465054
SW100PYGGCLV90	9/16	M14	1/2	90	122	275	13.65	347	7.6	3.4	46465057
SW100PYGCLV153	5/8	M16	3/4	153	207	150	14.65	372	10.3	4.7	46515064
SW100PYGCLV190	3/4	M16	3/4	190	257	125	14.65	372	10.3	4.7	46515065
SW100PYGCLV305	7/8	M20	3/4	305	413	70	15.02	381	11.3	5.1	46515067
SW100PYGCLV550	1	M22	1	550	746	37	17.51	445	17.8	8.08	46515056
SW100PYGCLV680	1 1/8	M24	1	680	922	30	17.51	445	17.8	8.08	46515057
SW100PYGCLV920	1 1/4	M27	1	920	1248	22	17.51	445	17.8	8.08	46515058
SW100PYGCLV1080	1 1/4	M30	1	1080	1464	19	17.51	445	17.8	8.08	46515059
SW100PYGCLV1460	1 1/2	M36	1	1460	1980	15	17.51	445	17.8	8.08	46515061
SW100PYGCLVM3000•	1 3/4	M42	1 1/2	3000	4068	7	16.98	431	32.0	14.5	46575016

- Slave drive reaction bar standard
- Δ No cable on tool – 6 pin connector only on transducer

STANDARD EQUIPMENT

Torque reaction bar
Transducer (Electronic Torque Control models also include electronically controlled solenoid valve)
36" tool cable whip (6 pin connector on stall tools, 19 pin connector on electronic torque control tools)
Joint status lights

OPTIONAL EQUIPMENT

Reversible models
Suspension bails - see page 16
Slave square drive reaction bars - see page 16
Encoders for angle monitoring or control

Reaction Bar Nutrunners

Brushless DC In-Line Nutrunners

ROTOR TOOL®

Torque Range:
10 – 4068 Nm
8 – 3000 Ft. Lbs.

Bolt Size:
M6 – M42
1/4" – 1 3/4"

- Brushless DC motor
- 360° positionable reaction bar (swing bar models only)
- Lever
- Reversible
- Torque and angle control

DOBCO EQUIPMENT LTD



Model Number	Bolt Size		Square Drive (in)	Torque		Free Speed*	Length to back of reaction bar		Weight (w/o reaction bar)		Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg	
FIXED BAR											
E130LRYGGV8	1/4	M6	3/8	8	10	1520	18.0	458	4.4	1.9	38055015
E130LRYGGV17	5/16	M8	3/8	17	23	780	18.0	458	4.4	1.9	38055016
E130LRYGGV35	7/16	M10	3/8	35	47	375	18.0	458	4.4	1.9	38055017
E225LRYGGV55	1/2	M12	1/2	55	75	505	22.2	563	9.7	4.6	35495008
E225LRYGGV88	9/16	M14	1/2	88	119	320	22.2	563	9.7	4.6	35495006
E225LRYGGV118	5/8	M14	1/2	118	160	235	22.2	563	9.7	4.6	35495007
E225LRYGV210	3/4	M16	3/4	210	285	125	21.7	551	11.0	5.0	35235009
E225LRYGV450	1	M22	3/4	450	610	55	22.1	561	11.4	5.2	35235010
E225LRYGV625	1 1/8	M24	1	625	848	37	25.0	635	16.4	7.5	35235016
E225LRYGV1050	1 1/4	M30	1	1050	1424	22	25.0	635	16.4	7.5	35235018
E225LRYGV1520	1 1/2	M36	1	1520	2061	15	25.0	635	16.4	7.5	35235020
E225LRYGVM3000•	1 3/4	M42	1 1/2	3000	4068	7	25.7	653	44.6	20.3	35235051
SWING BAR											
ESW225LRYGV210	3/4	M16	3/4	210	285	125	23.1	587	12.2	5.5	35255031
ESW225LRYGV450	1	M22	3/4	460	610	55	23.5	597	12.6	5.7	35255030
ESW225LRYGV625	1 1/8	M24	1	625	848	37	26.4	671	17.6	8.0	35255040
ESW225LRYGV1050	1 1/4	M30	1	1050	1424	22	26.4	671	17.6	8.0	35255041
ESW225LRYGV1520	1 1/2	M36	1	1520	2061	15	26.4	671	17.6	8.0	35255019
ESW225LRYGVM3000•	1 3/4	M42	1 1/2	3000	4068	7	27.1	689	45.8	20.8	35485001

• Slave drive reaction bar standard
* with 230 volts to controller

STANDARD EQUIPMENT

Torque reaction bar
Joint status lights
25 foot cable assembly

OPTIONAL EQUIPMENT

Suspension bails - see page 16
Slave square drive reaction bars - see page 16
Alternate output spindles
Alternate cable lengths
Resolver based motors for 225 series

Reaction Bar Nutrunners

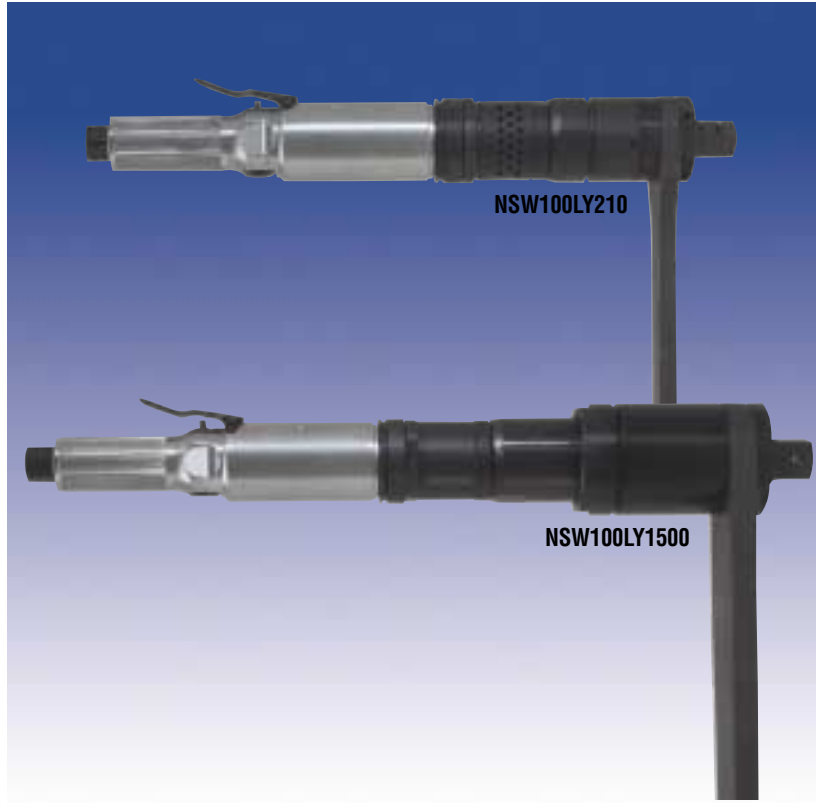
Pneumatic Non-Instrumented In-Line Nutrunners



Torque Range:
22 – 4068 Nm
16 – 3000 Ft. Lbs.

Bolt Size:
M8 – M42
5/16" – 1 3/4"

- 360° positionable reaction bar
- Reversible and non-reversible
- Lever



Model Number	Bolt Size		Square Drive (in)	Torque		Free RPM	Length		Wt. (w/o reaction bar)		Ordering Number	Ordering # with Selectork (add "ST" suffix to model)
	in	mm		ft lb	Nm		in	mm	lb	kg		
SWING BAR - REVERSIBLE - STALL TORQUE												
NSW100LRY22	3/8	M8	1/2	22	30	675	15.81	402	6.87	3.12	48585036	48585082
NSW100LRY39	7/16	M10	1/2	39	53	450	15.81	402	6.87	3.12	48585038	48585081
NSW100LRY60	1/2	M12	1/2	60	81	310	15.81	402	6.87	3.12	48585040	48585080
NSW100LRY80	9/16	M12	1/2	80	108	220	15.81	402	6.87	3.12	48585042	48585083
NSW100LRY100	9/16	M14	3/4	100	136	165	17.0	432	8.8	4.0	48585015	48585061
NSW100LRY135	5/8	M14	3/4	135	183	120	17.0	432	8.8	4.0	48585017	48585062
NSW100LRY220	3/4	M20	3/4	220	298	70	17.0	432	8.8	4.0	48585019	48585060
NSW100LRY345	7/8	M20	3/4	345	468	40	17.0	432	9.2	4.2	48585020	48585063
NSW100LRY500	1	M22	1	500	678	27	20.93	532	15.1	6.9	485850121	485850135
NSW100LRY615	1 1/8	M24	1	615	834	22	20.93	532	15.1	6.9	485850122	485850136
NSW100LRY980	1 1/4	M27	1	980	1379	14	20.93	532	15.1	6.9	485850124	485850137
NSW100LRY1300	1 3/8	M30	1	1300	1763	10	20.93	532	15.1	6.9	485850126	485850138
NSW100LRYBM2550•	1 3/4	M42	1 1/2	2550	3458	5	22.02	559	39.0	17.7	48L15001	48L15002
SWING BAR - NON - REVERSIBLE - STALL TORQUE												
NSW100LY16	5/16	M8	1/2	16	22	1600	14.37	365	5.87	2.66	480450105	48045092
NSW100LY28	3/8	M8	1/2	28	38	950	15.0	381	6.12	2.78	48485060	48045093
NSW100LY48	7/16	M10	1/2	48	65	565	15.0	381	6.12	2.78	48045022	48485050
NSW100LY75	1/2	M12	1/2	75	102	385	15.0	381	6.12	2.78	480450103	48045094
NSW100LY115	5/8	M14	1/2	115	156	225	15.0	381	6.12	2.78	48045028	48045095
NSW100LY170	5/8	M16	3/4	170	230	150	16.2	411	8.0	3.6	48485024	48485005
NSW100LY210	3/4	M16	3/4	210	285	125	16.2	411	8.0	3.6	48485025	48485001
NSW100LY280	7/8	M20	3/4	280	380	90	16.2	411	8.0	3.6	48485021	48485002
NSW100LY445	1	M22	3/4	445	603	55	16.6	422	8.31	3.7	48045054	48485007
NSW100LY620	1 1/8	M24	1	620	841	37	19.71	501	14.3	6.5	48485082	48485073
NSW100LY1035	1 1/4	M27	1	1035	1403	22	19.71	501	14.3	6.5	48485083	48485070
NSW100LY1500	1 1/2	M36	1	1500	2034	15	19.71	501	14.3	6.5	48485084	48485071
NSW100LYBM3000•	1 3/4	M42	1 1/2	3000	4068	7	20.8	528	32.0	14.5	48C25001	48C25002

•Slave drive reaction bar standard

STANDARD EQUIPMENT

Pushbutton reverse mechanism on reversible models
Torque reaction bar

OPTIONAL EQUIPMENT

Suspension balls - see page 16
Alternate output spindles
Slave square drive reaction bars - see page 16
Transducerized models

Reaction Bar Nutrunners

Pneumatic Non-Instrumented In-Line Nutrunners



ROTOR TOOL®

Torque Range:
79 – 3254 Nm
58 – 2400 Ft. Lbs.

Bolt Size:
M12 – M42
1/2" – 1 3/4"

- 360° positionable reaction bar
- Air shut-off
- Non-reversible
- Lever

DOBCO
EQUIPMENT LTD

Model Number	Bolt Size		Square Drive (in)	Torque		Free RPM	Length		Weight (w/o reaction bar)		Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg	
SWING BAR - NON - REVERSIBLE - AIR SHUT-OFF											
NSW100LYT58	1/2	M12	1/2	58	79	425	17.8	452	6.8	3.1	48845018
NSW100LYT90	9/16	M14	1/2	90	122	275	17.8	452	6.8	3.1	48845020
NSW100LYT153	5/8	M16	3/4	153	207	150	19.0	483	8.5	3.9	48845048
NSW100LYT190	3/4	M16	3/4	190	257	125	19.0	483	9.5	3.9	48845045
NSW100LYT305	7/8	M20	3/4	305	413	70	19.4	493	15.1	4.3	48845056
NSW100LYT550	1	M22	1	550	752	37	23.5	597	15.1	6.9	48845086
NSW100LYT680	1 1/8	M24	1	680	929	30	23.5	597	15.1	6.9	48845082
NSW100LYT920	1 1/4	M27	1	920	1254	22	23.5	597	15.1	6.9	48845087
NSW100LYT1080	1 1/4	M30	1	1080	1471	19	23.5	597	15.1	6.9	48845084
NSW100LYT1460	1 1/2	M36	1	1460	1986	14	23.5	597	15.1	6.9	48845088
NSW100LYTBM2400•	1 3/4	M42	1 1/2	2400	3254	9	24.6	625	32.0	14.5	48G25001

•Slave drive reaction bar standard
STANDARD EQUIPMENT
Torque reaction bar

OPTIONAL EQUIPMENT

Suspension bails - see page 16
Alternate output spindles
Slave square drive reaction bars - see page 16
Transducerized and electronic torque control models

Reaction Bar Nutrunners

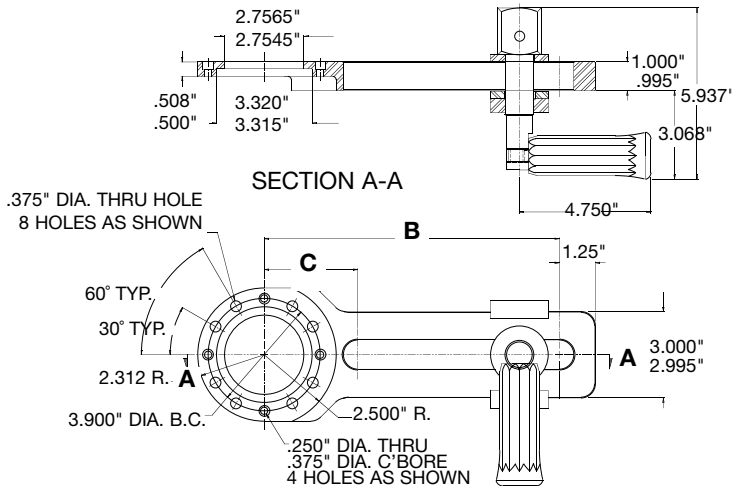
Optional Equipment

Tool Model Number	Torque Range Ft. Lbs.	Vertical Bail	Horizontal Bail	Slave Drive Option
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Suspension Bails and Slave Drive Reaction Bars

SW100PY	9-115	1143-1085A	5439-7004	4603-7081
SW100PY	125-445	N/A	4643-7006	4617-7030
SW100PY	530-1500	N/A	4660-7016	4660-7058
SW100PYBM	2400-3000	N/A	4603-7036	4619-6031(STANDARD)
SW100PRY	8-92	N/A	5439-7004	4603-7081
SW100PRY	100-345	N/A	4643-7006	4617-7030
SW100PRY	425-1300	N/A	4660-7016	4660-7058
SW100PRYBM	2050-2550	N/A	4603-7036	4619-6031(STANDARD)
NSW100LY(NON CL)	16-115	N/A	5439-7004	4603-7081
NSW100LY(NON CL)	125-445	N/A	4643-7006	4617-7030
NSW100LY(NON CL)	530-1500	N/A	4660-7016	4660-7058
NSW100LYBM	2400-3000	N/A	4603-7036	4619-6031(STANDARD)
NSW100LRY	8-92	N/A	5439-7004	4603-7081
NSW100LRY	100-345	N/A	4643-7006	4617-7030
NSW100LRY	425-1300	N/A	4660-7016	4660-7058
NSW100LRYBM	2050-2550	N/A	4603-7036	4619-6031(STANDARD)
NSW100LYGGCLV	25-100	N/A	4676-7004	4603-7081
NSW100LYGCLV	112-405	N/A	4899-7005	4617-7030
NSW100LYGCLV	470-1460	N/A	4660-7016	4660-7058
NSW100LYGCLVM	2400-3000	N/A	4603-7036	4619-6031(STANDARD)

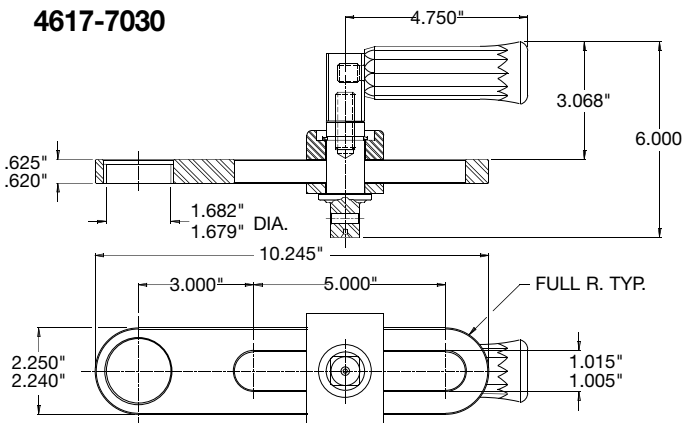
4619-6031



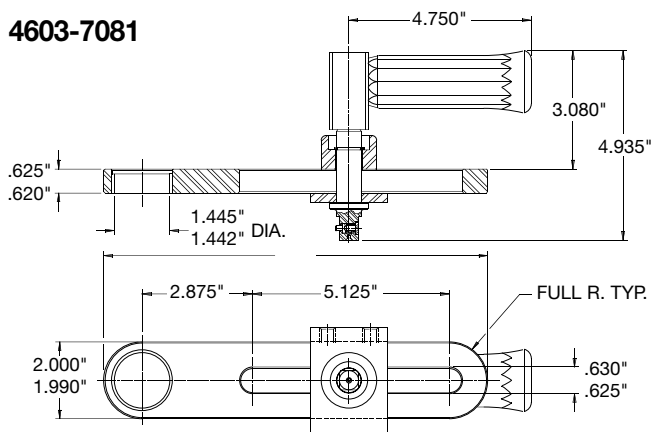
OPTIONAL: DRIVES ASSEMBLY

ASSEMBLY NO.	"B" LENGTH	"C" LENGTH	SQUARE DRIVES
4619-6031 STD.	10.243"	3.25"	1-1/2" STANDARD
4619-6032	10.243"	3.25"	1-1/2" EXTENDED
4619-6033	10.243"	3.25"	1" STANDARD
4619-6042	12.250"	5.25"	1" STANDARD

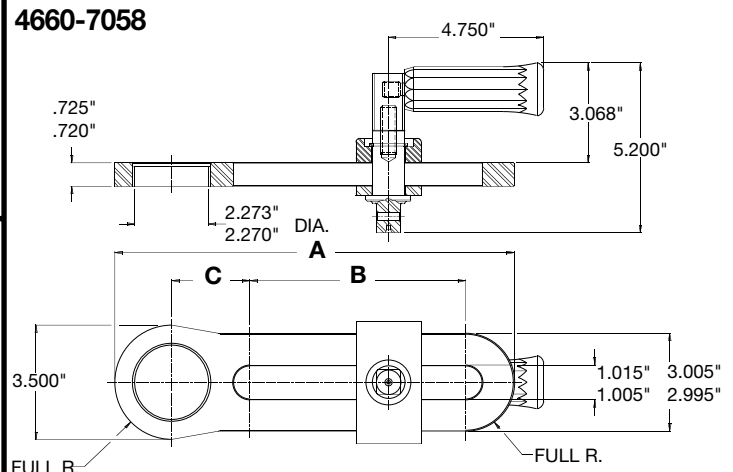
4617-7030



4603-7081

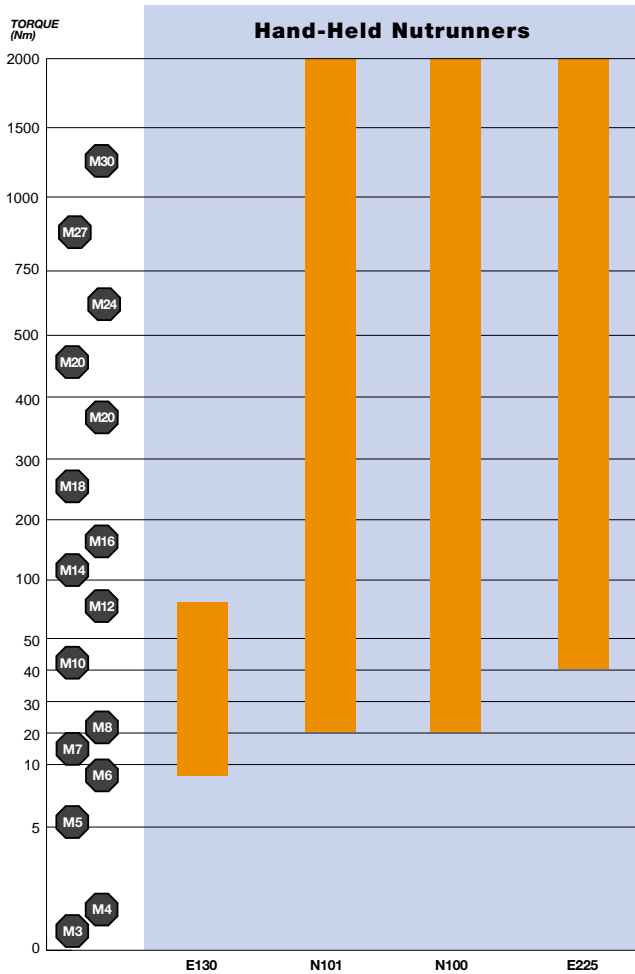


4660-7058



OPTIONAL: DRIVES ASSEMBLY

ASSEMBLY NO.	"A" LENGTH	"B" LENGTH	"C" LENGTH
4660-7058 STD.	12.25	6.60	2.40
4660-7078	8.35	2.70	2.40
4660-7077	15.65	10.00	2.40
4660-6066	18.25	6.00	9.00
4660-8167	20.15	14.50	2.40



Tools That Set The Standard

Outstanding performance, incredible durability, ease of use, plus ease of maintenance have made Rotor Tool Nutrunners the standard by which all others are measured. All Rotor Tool Nutrunners are tested in accordance with international standards such as ISO 5393 to insure 100% compliance with the demanding quality specifications of CooperTools.

Powerful Torque Output

All Rotor Tool Nutrunners are designed to provide the highest torque at the highest speed possible. This reduces production rundown cycle time and decreases impulse reaction. Coupled with a diverse control selection, a wide range of drive options and clean operation, these tools offer manufacturers the highest productivity.

Diverse Control Selection

A broad selection of control methods have been developed for Rotor Tool Nutrunners providing precise control through a wide range of torques. This diversity allows you to fit the right tool for the job. Electric and pneumatic tools equipped with transducers and ELECTRONIC TORQUE CONTROL provide the ultimate torque control

for the most critical fasteners. Pneumatic CLUTCH tools offer an adjustable mechanism to provide outstanding repeatability over a broad range. AIR SHUT OFF tools include a valve that shuts off the air supply to the motor just prior to stall. This mechanism helps reduce torque scatter as well as torque reaction to the operator. The STALL tool is best suited for "less critical" fastening applications.

Special Tools for Special Applications

The Rotor Tool line offers a broad array of fastening tools for special applications. Tools such as Hold-and-Drive, Flush Socket and Double-Ended nutrunners are available as well as a diverse selection of output spindles.



Hand-Held Nutrunners

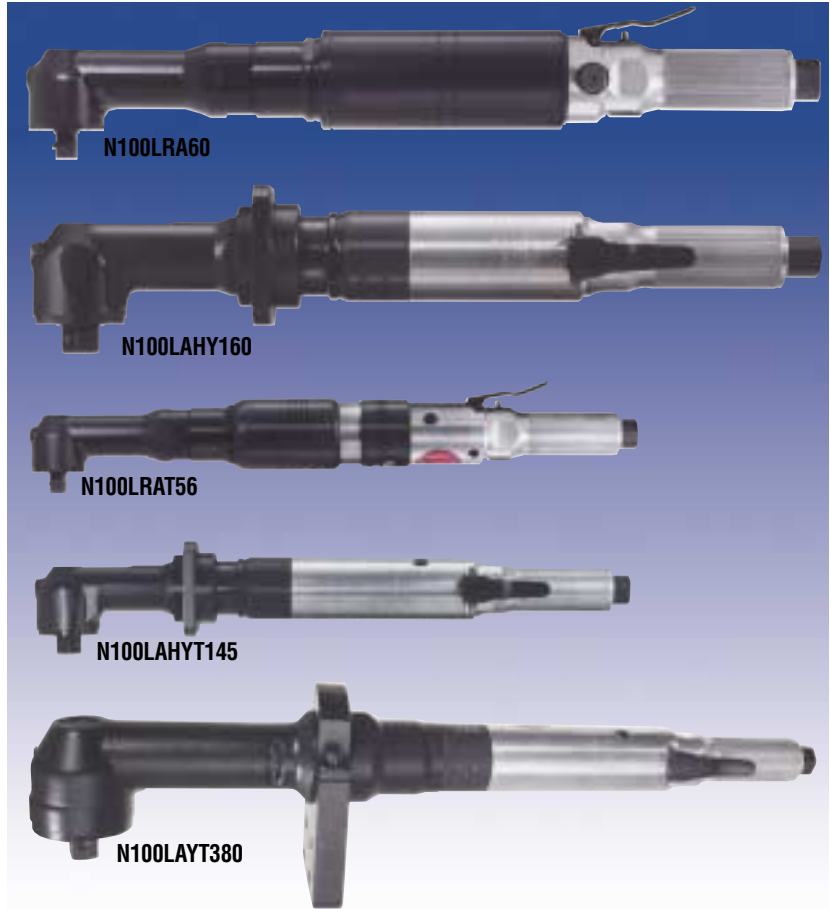
Pneumatic Non-Instrumented Angle Nutrunners



Torque Range:
4 – 515 Nm
3 – 380 Ft. Lbs.

Bolt Size:
M4 – M20
#10 – 1"

- Reversible and non-reversible
- Air shut-off and stall
- Lever



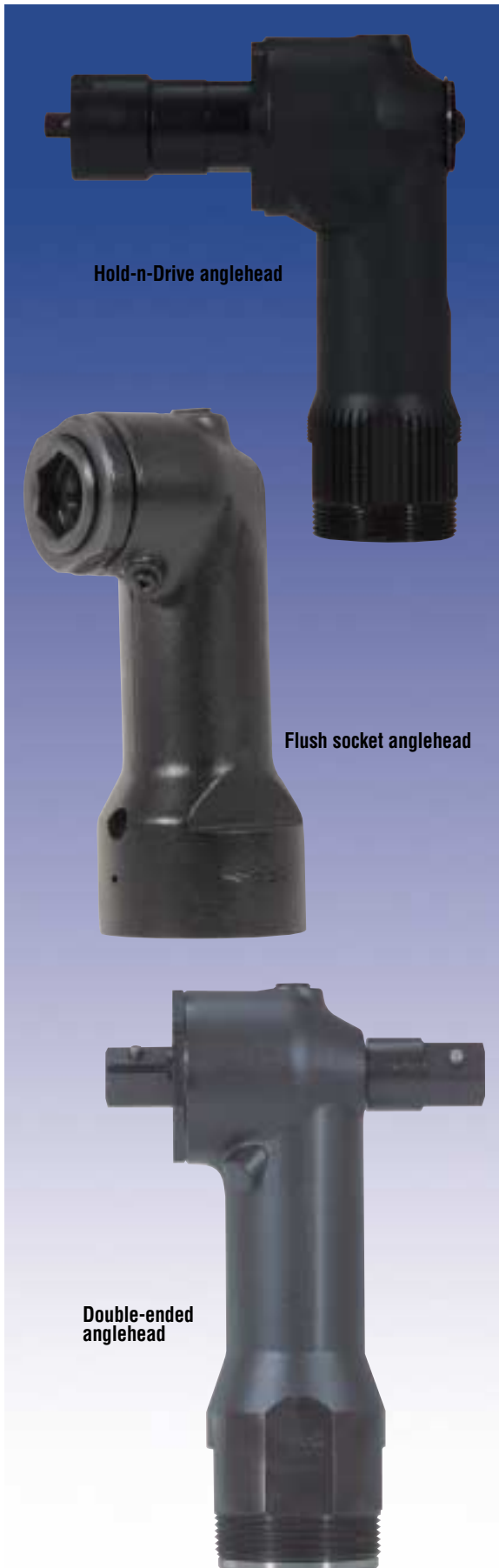
Model Number	Bolt Size		Square Drive (in)	Torque		Free Speed	Length		Weight		Angle Head	Ordering Number	Ordering # with Selectork (add "ST" suffix to model)
	in	mm		ft lb	Nm		in	mm	lb	kg			
REVERSIBLE - *STALL TORQUE													
N100LRA51	7/16	M10	1/2	51	69	310	17.62	448	7.5	3.4	4801	48025069	N/A
N100LRA60	1/2	M12	1/2	60	81	245	17.62	448	7.5	3.4	4801	48025070	N/A
N100LRA90	9/16	M14	1/2	90	122	160	17.62	448	7.5	3.4	4801	48285014	N/A
N100LRAHY140	5/8	M16	5/8	140	190	105	17.67	449	8.18	3.71	4805	48285050	N/A
NON-REVERSIBLE - STALL TORQUE													
N101LAP50	7/16	M10	1/2	50	68	325	16.9	429	6.15	2.8	4801	43445007	N/A
N101LAP65	1/2	M12	1/2	65	88	280	16.9	429	6.15	2.8	4801	43445008	N/A
N101LAP85	9/16	M12	1/2	85	115	200	16.9	429	6.15	2.8	4801	43445009	N/A
N100LAHY100	9/16	M14	5/8	100	136	300	17.24	438	7.5	3.4	4805	48215007	N/A
N100LAHY160	5/8	M16	5/8	160	217	165	17.24	438	7.5	3.4	4805	48215025	N/A
REVERSIBLE - **AIR SHUT-OFF													
N100LRAT56	1/2	M12	1/2	56	76	225	19.9	505	8.6	3.9	4801	48785007	48785056
N100LRAHYT94	9/16	M14	1/2	94	127	135	19.9	505	8.6	3.9	4801	48905014	48905061
N100LRAHYT142	5/8	M16	3/4	142	193	90	19.95	507	9.28	4.21	4805	48905004	48905063
N100LRAHYT300	7/8	M20	3/4	300	407	40	24.3	617	13.8	6.30	4501	48905024	48905064
NON-REVERSIBLE - AIR SHUT-OFF													
N101LAPT65	1/2	M12	1/2	65	88	280	19.2	487	7.25	3.3	4801	43355008	43355060
N101LAPT85	9/16	M12	1/2	85	115	200	19.2	487	7.25	3.3	4801	43355009	43355054
N100LAHYT105	9/16	M14	5/8	105	142	255	19.2	487	7.25	3.3	4805	48855021	48855063
N100LAHYT145	5/8	M16	3/4	145	197	165	19.2	489	8.0	3.6	4805	48855012	48855065
N100LAYT260	3/4	M20	3/4	260	353	90	23.6	600	12.5	5.7	4501	488550101	48855058
N100LAYT380	1	M20	3/4	380	515	60	23.6	600	12.5	5.7	4501	48855001	48855055

STANDARD EQUIPMENT

*Pushbutton reverse mechanism on reversible models.
**Ring reverse on reversible models
Pin retainer
Torque reaction mounting plate (models including "Y")

OPTIONAL EQUIPMENT

Suspension balls - see page 22
Female sockets and alternate output spindles - see pages 23-33
Torque reaction mounting plate - see page 22
Transducerized models



Hold-n-Drive anglehead

Flush socket anglehead

Double-ended anglehead

■ Hold-and-Drive

Sometimes called shock absorber tools, "HOLD-N-DRIVE" bolts are used with these tools in automotive and truck frame applications. They reduce assembly handling to one person working from one side of the workpiece. The bolt is held stationary by the tool while the nut is tightened from the same side. This also eliminates reaction bars since the bolt absorbs the torque.

Available "HOLD" devices:

Torx bits from	T25	to	T50
Hex bits from	5mm	to	10mm
Hex Sockets from	5mm	to	12mm
Oval Sockets from	15/64" x 21/64"	to	5/16" x 13/32"

Available "DRIVE" sockets

from	9/16"	to	24mm
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Available torque range

from	20	to	150 ft. lbs.
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See pages 31-33



■ Built-in Sockets

Tight assembly areas may require a BUILT-IN (or flush) socket on the angle head when clearances do not permit a square drive output to accept a separate socket.

Available ranges:

Series	Torque Range (nm)	Sockets (mm)
5701, 5702	1-25	8 to 15
4328, 4329	10-50	10 to 15
5714, 5715	10-50	10 to 15
4801, 4802	20-130	13 to 21
5720, 5721	20-130	13 to 21
4805	60-250	18 to 24
4503	150-320	15 to 24
4501	200-550	30

See pages 23-30

■ Double End

Tools can be used for bi-directional fastening applications with a DOUBLE-END angle head.

Available in all sizes.

See pages 23-30

Hand-Held Nutrunners

Pneumatic Instrumented Angle Nutrunners



Torque Range:
4 – 515 Nm
3 – 380 Ft. Lbs.

Bolt Size:
M4 – M20
#10 – 7/8"

- Reversible and non-reversible
- Lever
- Ring reverse on reversible models
- Electronically-controlled solenoid valve



Model Number	Bolt Size		Square Drive (in)	Torque		Free Speed	Length		Weight		Angle Head	Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg		
REVERSIBLE -ELECTRONIC TORQUE CONTROL												
N54LRAGGCLV3	#10	M4	3/8	3	4	1975	17.2	437	5.1	2.3	5701	54405002
N54LRAGGCLV5	#10	M5	3/8	5	7	1100	17.2	437	5.1	2.3	5701	54405004
N54LRAGGCLV8	1/4	M6	3/8	8	11	675	17.2	437	5.1	2.3	5701	54405006
N54LRAGGCLV20	5/16	M8	3/8	20	27	280	17.2	437	5.1	2.3	5701	54405010
N54LAHGGCLV33	3/8	M10	3/8	33	45	170	17.3	439	5.5	2.5	5714	54405012
N100LRAGGCLV65	1/2	M12	1/2	65	88	195	24.8	630	11.1	5.0	4801	48A65008
N100RAGGCLV94	9/16	M14	1/2	94	127	135	24.8	630	11.1	5.0	4801	48A65011
N100LAHYGGCLV142	5/8	M16	3/4	142	193	90	24.8	630	11.2	5.1	4805	48A75024
NON-REVERSIBLE -ELECTRONIC TORQUE CONTROL												
N54LAGGCLV3	#10	M4	3/8	3	4	2490	16.31	414	4.9	2.2	5750	54395001
N54LAGGCLV5	#10	M5	3/8	5	7	1645	16.31	414	4.9	2.2	5701	54395003
N54LAGGCLV8	1/4	M6	3/8	8	11	990	16.31	414	4.9	2.2	5701	54395012
N54LAGGCLV17	5/16	M8	3/8	17	23	460	16.31	414	4.9	2.2	5701	54395006
N54LAHGGCLV39	7/16	M10	3/8	39	53	205	16.45	418	5.9	2.7	5714	54395005
N101LAPGGCLV65	1/2	M12	1/2	65	88	280	23.78	604	10.4	4.7	4801	43A35008
N101LAPGGCLV85	9/16	M12	1/2	85	115	200	23.78	604	10.4	4.7	4801	43A35009
N100LAYGGCLV105	9/16	M14	1/2	105	142	255	23.78	604	11.1	5.0	4801	48A35068
N100LAHYGGCLV145	5/8	M16	3/4	145	197	175	23.78	604	11.2	5.1	4805	48A35069
N100LAYGCLV240	3/4	M20	3/4	240	325	90	28.10	714	15.5	7.0	4503	48C85012
N100LAYGCLV380	7/8	M20	3/4	380	515	60	28.10	714	15.5	7.0	4501	48C85011

STANDARD EQUIPMENT

Joint status lights
3 foot long cable with 19 pin connector

OPTIONAL EQUIPMENT

Suspension bails - see page 22
Female sockets and alternate output spindles - see pages 23-33
Encoders for angle monitoring or control

Hand-Held Nutrunners

Brushless DC Hand-Held Nutrunners



ROTOR TOOL®

Torque Range:
15 – 1702 Nm
11 – 1255 Ft. Lbs.

Bolt Size:
M6 – M30
1/4" – 1 3/8"

- DC brushless motor
- Reversible
- Lever
- Torque and angle control

DOBCO EQUIPMENT LTD

Model Number	Bolt Size		Square Drive (in)	Torque		Free Speed	Length		Weight		Angle Head	Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg		
RIGHT ANGLE												
E130LRAAGGV11	1/4	M6	3/8	11	15	1415*	20.5	521	4.6	2.1	5702	38005084
E130LRAAGGV17	5/16	M6	3/8	17	23	815*	20.6	523	4.9	2.2	5702	38005085
E130LRAAHGGV26	3/8	M8	3/8	26	35	520*	20.6	523	4.9	2.2	5715	38005037
E130LRAAHGGV36	7/16	M10	3/8	36	49	370*	20.6	523	4.9	2.2	5715	38005070
E130LRAAHGGV65	1/2	M12	1/2	65	88	205*	21.8	554	6.2	2.8	5721	38005068
E225LRAAGGV92	9/16	M14	1/2	92	125	275*	26.9	683	11.3	5.1	4802	35175033
E225LRAHYGGV151	5/8	M16	3/4	151	205	170*	27.0	686	12.2	5.5	4805	35215032
E225LRAYGV230	3/4	M20	5/8	230	312	105*	31.8	808	19.6	8.9	4503	35305001
E225LRAYGV420	7/8	M22	3/4	420	570	60*	32.5	826	21.2	9.6	4501	35305007
E225LRAYGGV56MR765	1 1/4	M27	1	765	1037	28*	26.0	660	22.3	10.1	4802	35215070
E225LRAYGGV92MR1255	1 3/8	M30	1	1255	1702	17*	26.0	660	22.3	10.1	4801	35215071

* With 230 volts to controller

STANDARD EQUIPMENT

Joint status lights
25 foot cable assembly
Torque reaction mounting plate (models including "Y")

OPTIONAL EQUIPMENT

Suspension bails - see page 22
Female sockets and Alternate output spindles - see pages 23-33
Alternate cable lengths
Resolver-based motors for 225 Series

Hand-Held Nutrunners

Optional Equipment

Suspension Bails and Mounting Plates

Tool Model Number	Torque Range Ft/Lbs.	Vertical Bail	Horizontal Bail	When "Y" in Model # Mounting Plate
Suspension Bails and Mounting Plates				
N52LRA	2-17	827-1012	5415-7013	5721-7102
N52LRAH	13-33	827-1012	5415-7013	4328-7131
N54LA	3-24	827-1012	5415-7013	5721-7102
N54LAH	24-43	827-1012	5415-7013	4328-7131
N54LAT	3-22	827-1012	5415-7013	5721-7102
N54LAHT	17-39	827-1012	5415-7013	4909-7101
N54LAGGCLV	3-22	N/A	5439-7004	5721-7102
N54LAHGGCLV	17-39	N/A	5439-7004	4328-7131
N54LRAT	2-20	827-1012	5415-7013	5721-7102
N54LRAHT	16-33	827-1012	5415-7013	4328-7131
N54LRAGGCL	2-20	N/A	5439-7004	5721-7102
N54LRAHGGCLV	16-33	N/A	5439-7004	4328-7131
N59	ALL	N/A	5798-8004	N/A
N100LAHY	100-180	N/A	48A6-7005	4909-7101
N100LAYT	205-380	N/A	4643-7006	4501-7152
N100LAHYT	88-170	N/A	48A6-7005	4909-7101
N100LAYGGCLV	42-105	N/A	48A6-7005	4909-7101
N100LAHYGGCLV	88-170	N/A	48A6-7005	4909-7101
N100LAYGCLV	205-380	N/A	48A1-7006	4909-7101
N100LRA	14-90	N/A	48A6-7005	4909-7101
N100LRAH	40-90	N/A	48A6-7005	4909-7101
N100LRAHY	75-150	N/A	48A6-7005	4909-7101
N100LRAT	40-94	N/A	3500-7004	4909-7101
N100LRAHT	40-94	N/A	3500-7004	4909-7101
N100LRAHYT	75-162	N/A	3500-7004	4909-7101
N100LRAHT	175-475	N/A	3500-7004	4909-7101
N100LRAGGCLV	40-94	N/A	3500-7004	4909-7101
N100LRAHYGGCLV	40-94	N/A	3500-7004	4909-7101
N101LAP	40-100	N/A	48A6-7005	4909-7101
N101LAPT	40-100	N/A	48A6-7005	4909-7101
N101LAPGGCLV	40-100	N/A	48A6-7005	4909-7101
ES115	ALL	3110-8161	3110-8161	N/A
E130LRAAGGV	11-22	5503-8113	3200-7014	5721-7102
E130LRAAHGGV	17-39	N/A	3200-7014	4328-7131
E130LRAAHGGV	37-65	N/A	3200-7014	4909-7101
E225LRAAGGV	44-109	N/A	48A6-7005	4909-7101
E225LRAHYGGV	92-172	N/A	48A6-7005	4909-7101
E225LRAHYGGV	195-230	N/A	48A6-7005	4909-7101
E225LRAHYGGV	250-540	N/A	48A6-7005	4909-7101
E225LRAHYGGV	635-1480	N/A	4660-7016	TORQUE BAR STANDARD

Torque Reaction Mounting Plates: Add "Y" to model number

Torque Reaction Bar: Add "Y" to model number and specify "reaction bar instead of mounting plate."

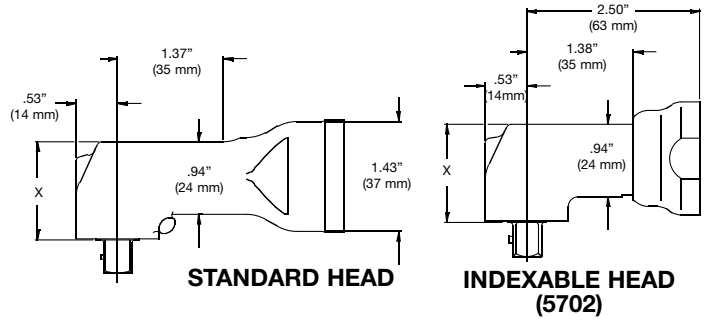
Horizontal Bails



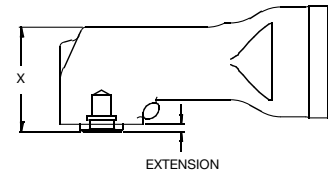
Right Angle Heads

5701/5702/5750 SERIES

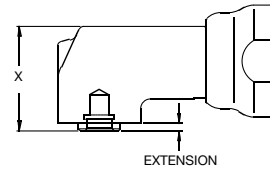
Description	Output Spindle	"X" Dimension
Single End		
* 1/4" Square Drive	5701-7157	1.29" (33mm)
* 3/8" Square Drive	5701-7139	1.29" (33mm)
* 3/8" Square Drive w/ Ball Retainer	5701-7242	1.30" (33mm)
** 1/4 - 28 UNF X 5/16" Female Thread	5701-7164	1.32" (34mm)
** 3/8 - 24 UNF X 7/16" Male Thread	2502-7114	1.42" (36mm)
** 3/8 - 24 UNF X 5/8" Male Thread	2502-7110	1.79" (45mm)



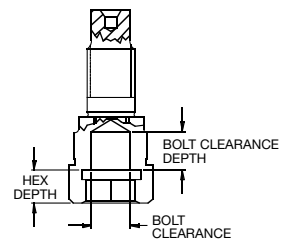
Description	Output Spindle	"X" Dimension	Bolt Clearance	Bolt Depth	Hex Depth
Hex Sockets					
5/16" Flush	5701-7296	1.32" (34mm)	.250" Dia.	.253"	.215"
9/16" X 1/4" Ext.	5701-7284	1.77" (44mm)	.406" Dia.	.260"	.340"
9/16" X 1/2" Ext.	5701-7335	2.02" (51mm)	.406" Dia.	.510"	.340"
8 mm Flush	5701-7217	1.36" (35mm)	.250" Dia.	.253"	.215"
10 mm Flush	5701-7218	1.53" (39mm)	.296" Dia.	.316"	.215"
10 mm Flush Fast Lead	5701-7349	1.53" (39mm)	.296" Dia.	.316"	.215"
10 mm Flush Surface Dr.	5701-7352	1.53" (39mm)	.296" Dia.	.316"	.215"
*10 mm Flush Magnetic	5701-6342	1.53" (39mm)	.296" Dia.	.316"	.215"
*10 mm X 1/4" Ext. Mag.	5701-8330	1.78" (45mm)	For driving bolts only		
*10 mm X 1/4" Ext. Mag.	5701-6338	1.78" (45mm)	.265" Dia.	.566"	.215"
10 mm X 9/16" Ext.	5701-7333	2.037" (51mm)	.296" Dia.	.566"	.215"
10 mm X 1/4" Ext.	5701-7232	1.78" (45mm)	.296" Dia.	.566"	.215"
*10 mm X 1/4" Ext.	5701-7277	1.78" (45mm)	.296" Dia.	.566"	.109"
11 mm Flush	5701-7228	1.53" (39mm)	.312" Dia.	.328"	.203"
*11 mm Flush Magnetic	5701-8285	1.53" (39mm)	For driving bolts only		
*11 mm X 1/2" Ext.	5701-7243	2.03" (52mm)	.312" Dia.	.328"	.203"
12 mm Flush	5701-7297	1.53" (39mm)	.328" Dia.	.328"	.203"
*12 mm X 1/4" Ext.	5701-7257	1.78" (45mm)	.328" Dia.	.328"	.453"
13 mm Flush	5701-7167	1.53" (39mm)	.328" Dia.	.328"	.203"
*13 mm Flush	5701-7247	1.57" (40mm)	For driving bolts only		
*13 mm Magnetic	5701-7231	1.53" (39mm)	For driving bolts only		
13 mm X 1/4" Ext.	5701-6327	1.78" (45mm)	.328" Dia.	.328"	.203"
*13 mm X 1/4" Ext. Mag.	5701-6287	1.78" (45mm)	For driving bolts only		
13 mm X 5/16" Ext.	5701-6347	1.84" (47mm)	.328" Dia.	.339"	.505"
*13 mm X 5/16" Ext.	5701-7233	1.84" (47mm)	.328" Dia.	.328"	.516"
*13 mm X 1/2" Ext. Mag.	5701-8325	2.03" (52mm)	For driving bolts only		
*13 mm X 1/2" Ext.	5701-7205	2.03" (52mm)	.328" Dia.	.656"	.375"
15 mm X 17/64" Ext.	5701-7322	1.72" (43mm)	.500" Dia.	.250"	.250"
*15 mm X 1.2" Ext.	5701-7254	2.03" (52mm)	.500" Dia.	.249"	.266"
15 mm X 1/2" Ext.	5701-7324	1.96" (49mm)	.500" Dia.	.360"	.375"
1/4 - 28 Male Thread	5701-7164	1.31" (33mm)	.312" Thread Depth		



STANDARD HEAD



INDEXABLE HEAD (5702)



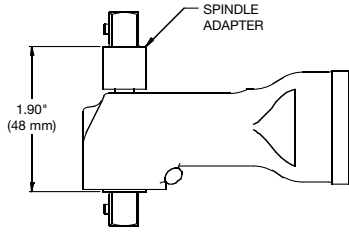
BOLT CLEARANCE



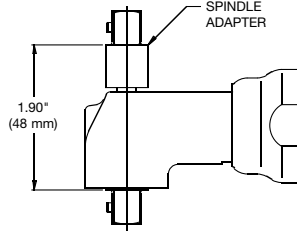
* With Holding Feature
** Non-Reversible only

Right Angle Heads

5701/5702/5750 SERIES

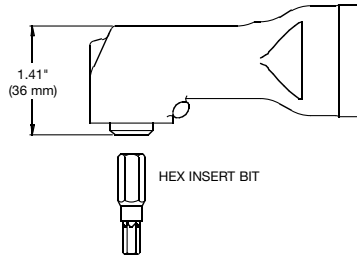


STANDARD HEAD

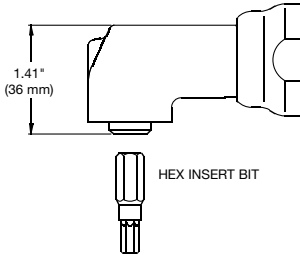


INDEXABLE HEAD (5702)

Description	Output Spindle	Spindle Adapter
Double End **3/8" Square Drive	5701-7222	5701-8223

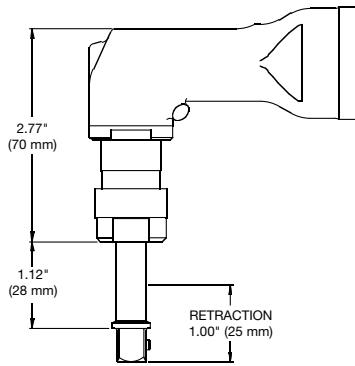


STANDARD HEAD

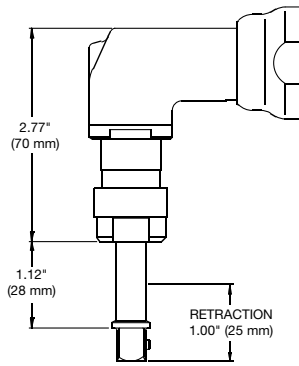


INDEXABLE HEAD (5702)

Description	Output Spindle
Insert Bit * 1/4" Hex * 1/4" Hex Magnetic	5701-7158 5701-7168



STANDARD HEAD



INDEXABLE HEAD (5702)

Description	Output Spindle
Sliding Spindle * 3/8" Square Drive 3/8" Square Drive X 2-1/8" Ext.5701-7353	5701-7241

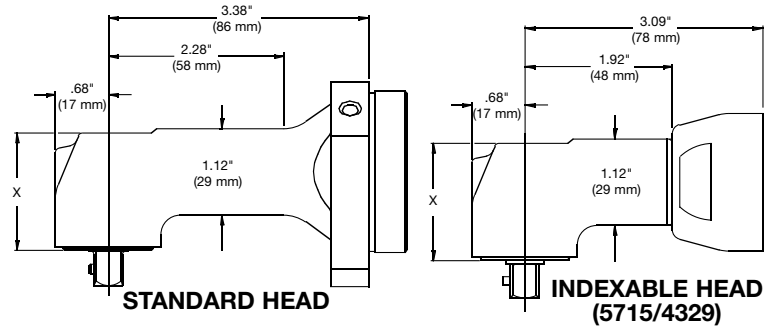
* With Holding Feature
** Non-Reversible only

Right Angle Heads

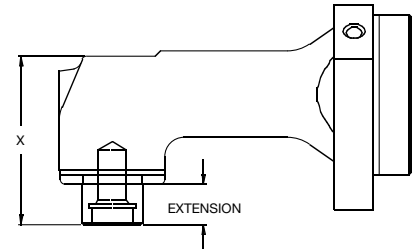
5714/5715/5799H/4328/4329 SERIES

Torque Reaction Mounting Plate Available as optional equipment with 5714 or 4328 Head

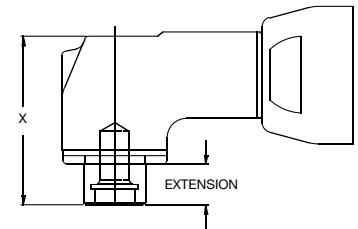
Description	Output Spindle	"X" Dimension
Single End		
* 3/8" Square Drive	1260-1249AA	1.54" (39mm)
* 3/8" Square Drive w/ Ball Retainer	4328-7149	1.54" (39mm)
* 1/2" Square Drive	1260-1249AR	1.70" (43mm)
1/2" Square Drive w/ Ball Retainer	4328-7199	1.70" (43mm)
** 1/2 - 20 UNF X 5/8" Male Thread	1260-1249B	1.62" (41mm)



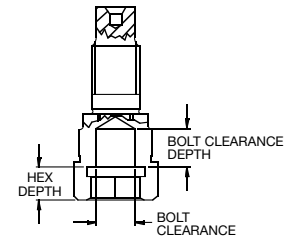
Description	Output Spindle	"X" Dimension	Bolt Clearance	Bolt Depth	Hex Depth
1/2" Flush	1260-1249AT	1.70" (43mm)	.375" Dia.	.203"	.265"
9/16" Flush	1260-1249BH	1.70" (43mm)	.375" Dia.	.128"	.340"
9/16" X 1/4" Ext.	1260-1249BF	1.91" (49mm)	.375" Dia.	.406"	.281"
9/16" X 1/2" Ext.	1260-1249BG	2.19" (56mm)	.375" Dia.	.597"	.340"
5/8" Flush	4328-6221	1.70" (43mm)	.500" Dia.	.203"	.265"
10 mm Flush	4328-7194	1.70" (43mm)	.297" Dia.	.316"	.215"
* 11 mm X 1/4" Ext.	4328-7134	1.91" (49mm)	.312" Dia.	.406"	.281"
13 mm Flush	1260-1249AV	1.70" (43mm)	.375" Dia.	.203"	.265"
* 13 mm Flush	4328-7164	1.69" (43mm)	For driving bolts only		
* 13 mm X 1/4" Ext.	1260-1249AU	1.91" (49mm)	.375" Dia.	.406"	.281"
13 mm X 1/4" Ext.	1260-1249BD	1.91" (49mm)	.375" Dia.	.406"	.281"
13 mm X 1/2" Ext.	1260-1249AW	2.19" (56mm)	.375" Dia.	.703"	.265"
13 mm X 1/2" Ext.	4328-7213	2.19" (56mm)	.329" Dia.	.406"	.281"
13 mm X 1" Ext.	1260-1249AZ	2.70" (69mm)	.375" Dia.	.218"	1.250"
13 mm X 1" Ext.	4328-7212	2.70" (69mm)	.329" Dia.	.406"	.281"
14 mm Flush	1260-1249BJ	1.70" (43mm)	.375" Dia.	.156"	.312"
15 mm Flush	4328-6202	1.70" (43mm)	.500" Dia.	.203"	.266"
15 mm Flush Fast Lead	4328-6210	1.70" (43mm)	.438" Dia.	.203"	.265"
15 mm X 1/8" Ext.	4328-6207	1.82" (46mm)	.438" Dia.	.219"	.375"
* 15 mm X 1/4" Ext.	4328-7140	1.98" (50mm)	.500" Dia.	.375"	.375"
15 mm X 1/4" Ext. w/Mag/ Ret.	4328-6214	1.98" (50mm)	.500" Dia.	.375"	.375"
15 mm X 1/8" Ext. Mag. Ret.	4328-6217	1.82" (46mm)	.438" Dia.	.246"	.357"
15 mm X 1/4" Ext.	4328-6211	1.94" (49mm)	.438" Dia.	.219"	.500"
15 mm X 1/4" Ext. Fast Lead	4328-6209	1.94" (49mm)	.438" Dia.	.219"	.500"
15 mm X 1/2" Ext.	4328-6208	2.19" (56mm)	.438" Dia.	.219"	.750"
15 mm X 3/4" Ext.	4328-6219	2.44" (61mm)	.438" Dia.	.219"	1.000"
15 mm X 1" Ext.	4328-6205	2.70" (68mm)	.438" Dia.	.969"	.500"
15 mm X 1" Ext.	4328-6206	2.70" (68mm)	.438" Dia.	.219"	1.250"



STANDARD HEAD



INDEXABLE HEAD (5715/4329)



BOLT CLEARANCE

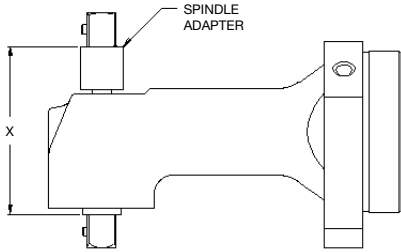


* With Holding Feature
 ** Non-Reversible only

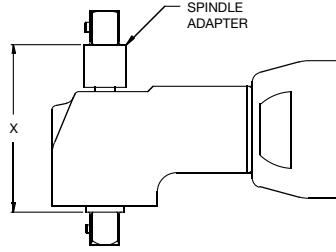
Right Angle Heads

5714/5715/5799H/4328/4329 SERIES

Torque Reaction Mounting Plate Available as optional equipment with 5714 or 4328 Head.



STANDARD HEAD

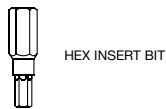
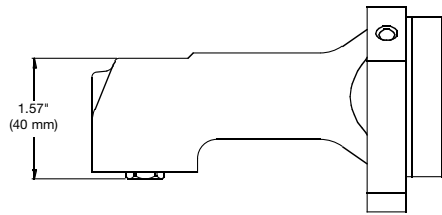


**INDEXABLE HEAD
(5715/4329)**

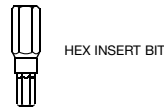
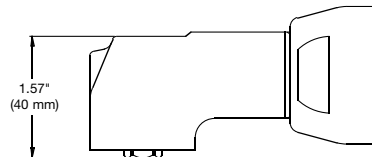
Description	Output Spindle	Spindle Adapter	"X" Dimension
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Double End

** 3/8" Square Drive	1260-1249AD	1260-1145B	2.20" (56mm)
** 1/2" Square Drive	1260-1249AB	1260-1145A	2.26" (57mm)
** 1/2" Square Drive with Adapter	1260-1145		
1/2" Square Drive	4328-7224	4328-7225	2.50" (63mm)



STANDARD HEAD

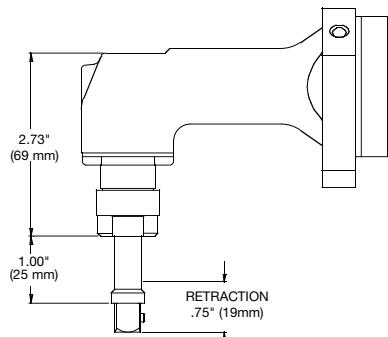


**INDEXABLE HEAD
(5715/4329)**

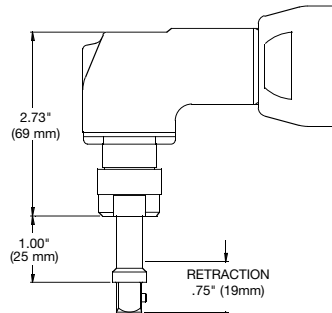
Description	Output Spindle
-------------	----------------

Insert Bit

* 5/16" Hex	1260-1249AN
1/4" Hex	4328-7190



STANDARD HEAD



**INDEXABLE HEAD
(5715/4329)**

Description	Output Spindle
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Sliding Spindle

1/4" Square Drive 4" Extended	5701-7357
* 3/8" Square Drive	5701-7235
3/8" Square Drive 2" Extended	5701-7361
3/8" Square Drive 4" Extended	5701-7362

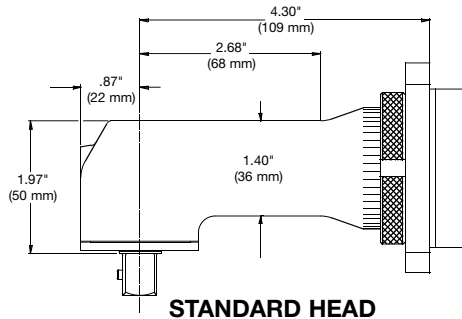
* With Holding Feature
** Non-Reversible only

Right Angle Heads

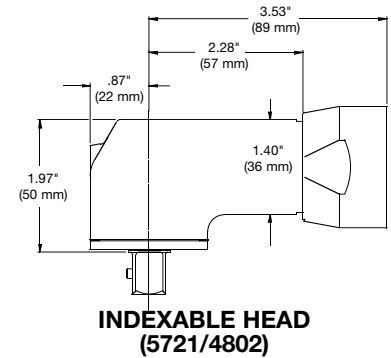
5720/5721/5799HH/4801/4802 SERIES

Torque Reaction Mounting Plate Available as optional equipment with 5720 or 4801 Head.

Description	Output Spindle
Single End	
* 3/8" Square Drive	1260-1249AL
* 1/2" Square Drive	1260-1249AE
* 1/2" Square Drive w/ Ball Retainer	4801-7231
3/8" Square Drive w/ Ball Retainer	4801-7270
1/2 - 20P Thread	1280-1249
1/2 - 20 UNF 2B 3/4" Deep	1955-6145

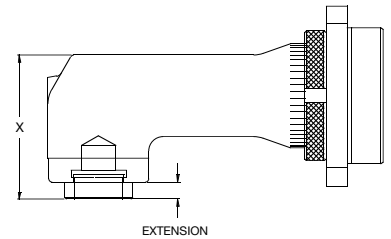


STANDARD HEAD

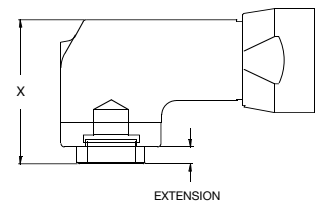


**INDEXABLE HEAD
(5721/4802)**

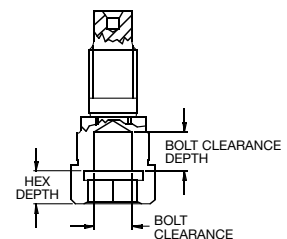
Hex Sockets	Output Spindle	"X" Dimension	Bolt Clearance	Bolt Depth	Hex Depth
1/2" (13mm) Flush	1955-7107	2.32" (59mm)	.375" Dia.	.375"	.562"
1/2" (13mm) X 1/2" Ext.	1955-7120	2.75" (70mm)	.375" Dia.	.250"	1.000"
9/16" Flush	1955-7106	2.32" (59mm)	.438" Dia.	.375"	.562"
9/16" x 1/2" Ext.	1955-7141	2.75" (70mm)	.470" Dia.	.250"	.562"
5/8" Flush	1955-7105	2.32" (59mm)	.500" Dia.	.375"	.562"
11/16" Flush	1955-7104	2.32" (59mm)	.563" Dia.	.375"	.562"
3/4" (19mm) Flush	1955-7102	2.32" (59mm)	.563" Dia.	.375"	.562"
3/4" (19mm) 1/2" Ext.	1955-7121	2.75" (70mm)	.563" Dia.	.750"	.562"
14 mm Flush	1955-7153	2.32" (59mm)	.437" Dia.	.313"	.562"
15 mm Flush	1955-6149	2.32" (59mm)	.437" Dia.	.313"	.562"
15 mm Flush	1955-7111	2.32" (59mm)	.438" Dia.	.375"	.562"
15 mm X 1/4" Ext.	1955-7134	2.50" (64mm)	.437" Dia.	.250"	.750"
15 mm X 1/4" Ext.Fast Ld.	1955-7146	2.50" (64mm)	.437" Dia.	.250"	.750"
15 mm X 1/2" Ext.	1955-7117	2.75" (70mm)	.438" Dia.	.250"	1.000"
16 mm (5/8") X 1/2" Ext.	1955-7129	2.75" (70mm)	.470" Dia.	.250"	1.000"
17 mm Flush	1955-7114	2.32" (59mm)	.500" Dia.	.375"	.562"
18 mm Flush	1955-7112	2.32" (59mm)	.500" Dia.	.375"	.562"
*18 mm Flush	1955-7127	2.32" (59mm)	.438" Dia.	.406"	.500"
18 mm X 1/2" Ext.	1955-7119	2.75" (70mm)	.500" Dia.	.250"	1.000"
18 mm X 1/4" Ext.Fast Ld.	1955-7147	2.50" (64mm)	.500" Dia.	.250"	.750"
18 mm X 1" Ext.Fast Ld.	1955-7151	3.26" (82mm)	.500" Dia.	1.000"	.750"
21 mm Flush	1955-7113	2.32" (59mm)	.594" Dia.	.312"	.562"
21 mm Flush Fast Lead	1955-7152	2.32" (59mm)	.594" Dia.	.250"	.562"
21 mm X 1/4" Ext.	1955-6150	2.50" (64mm)	.594" Dia.	.376"	.562"
*21 mm X 1/4" Ext.	1955-7123	2.50" (64mm)	.594" Dia.	.437"	.500"
21 mm X 1/2" Ext.	1955-6143	2.75" (70mm)	.594" Dia.	.626"	.562"
21 mm X 1/2" Ext.	1955-7118	2.75" (70mm)	.594" Dia.	.687"	.562"
1/2-20 UNF Thr'd Spindle	1955-6145	2.32" (59mm)	.750" Deep Thread		



STANDARD HEAD



**INDEXABLE HEAD
(5721/4802)**

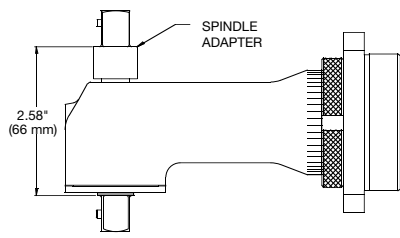


BOLT CLEARANCE

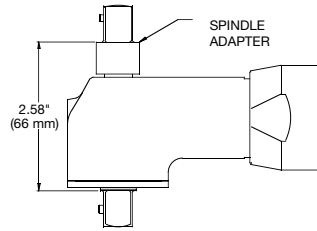
* With Holding Feature
** Non-Reversible only

Right Angle Heads

5720/5721/5799HH/4801/4802 SERIES (Cont'd.)

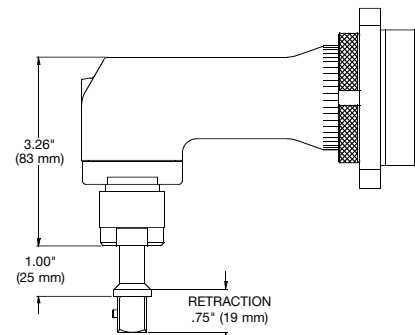


STANDARD HEAD

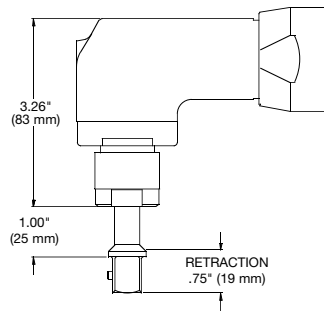


**INDEXABLE HEAD
(5721/4802)**

Description	Output Spindle	Spindle Adapter
Double End		
** 1/2" Square Drive	1260-1249AG	1260-1145D
1/2" Square Drive	4801-7301	9563-0004 (3/8" sq. dr.)



STANDARD HEAD



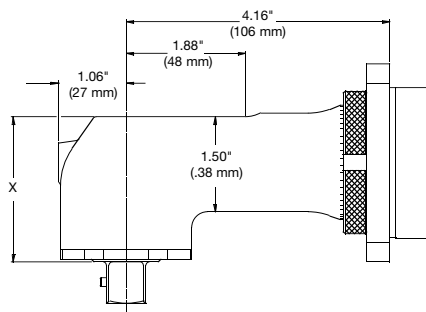
**INDEXABLE HEAD
(5721/4802)**

Description	Output Spindle
Sliding Spindle	
* 1/2" Square Drive	4801-7233
1/2" Square Drive w/ Ball Retainer	4801-7305



4805 SERIES

Torque reaction mounting plate available as optional equipment.



STANDARD HEAD

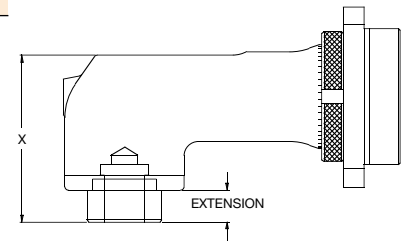
Description	Output Spindle	"X Dimension"
Single End		
* 1/2" Square Drive	4801-7141	2.29" (58mm)
1/2" Square Drive w/ Ball Retainer	4801-7249	2.29" (58mm)
* 5/8" Square Drive	4801-7152	2.29" (58mm)
* 3/4" Square Drive	4805-7107	2.29" (58mm)
3/4" Square Drive w/ Ball Retainer	4805-7116	2.29" (58mm)
5/8" Square Drive w/ Ball Retainer	4801-7298	2.29" (58mm)
** 5/8 - 11 UNF X 3/4" Male Thread	4801-7240	2.73" (69mm)
5/8" Female Square Drive	4805-6137	

* With Holding Feature
** Non-Reversible only

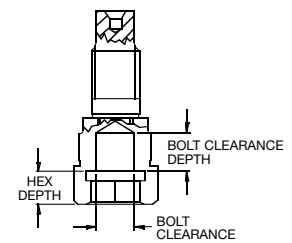
Right Angle Heads

4805 SERIES (Cont'd.)

Hex Sockets	Output Spindle	"X" Dimension	Bolt Clearance	Bolt Depth	Hex Depth
5/16" Flush	4801-7283	2.39" (61mm)	.656" Dia.	.016"	.656"
11/16" Flush	4801-7177	2.39" (61mm)	.563" Dia.	.125"	.500"
11/16" X 1/2" Flush	4801-7182	2.89" (73mm)	.563" Dia.	.594"	.531"
3/4" (19mm) Flush	4801-7178	2.39" (61mm)	.625" Dia.	.125"	.500"
3/4" (19mm) 1/2" Ext.	4801-7184	2.89" (73mm)	.625" Dia.	.750"	.500"
13/16" Flush	4801-7179	2.39" (61mm)	.625" Dia.	.125"	.500"
7/8" Flush	4801-7180	2.39" (61mm)	.625" Dia.	.125"	.500"
7/8" X 1/2" Ext.	4801-7181	2.89" (73mm)	.625" Dia.	.094"	1.094"
15/16" X 1/2" Ext.	4801-7183	2.89" (73mm)	.656" Dia.	.469"	.656"
15 mm X 1/4" Ext. Fast Lead	4805-7125	2.60" (66mm)	.437" Dia.	.310"	.750"
18 mm Flush	4801-7175	2.39" (61mm)	.500" Dia.	.125"	.500"
18 mm X 1/2" Ext.	4805-7114	2.89" (73mm)	.468" Dia.	.167"	1.000"
18 mm X 1/2" Ext. Fast Lead	4805-6135	2.89" (73mm)	.500" Dia.	.625"	.500"
18 mm X 1" Ext.	4805-7124	3.35" (85mm)	.500" Dia.	.175"	1.450"
19 mm X 1" Ext.	4801-7212	2.89" (73mm)	.625" Dia.	.625"	.500"
21 mm Flush	4801-7176	2.39" (61mm)	.594" Dia.	.125"	.500"
21 mm X 1/4" Ext. Fast Lead	4801-7268	2.60" (66mm)	.578" Dia.	.520"	.540"
21 mm X 1/2" Ext.	4801-7213	2.89" (73mm)	.578" Dia.	.125"	1.000"
21 mm X 1/2" Ext. Fast Lead	4801-7267	2.89" (73mm)	.578" Dia.	.520"	.540"
21 mm X 1" Ext.	4801-7171	3.34" (85mm)	.578" Dia.	.113"	.500"
21 mm X 1" Ext. Fast Lead	4801-7302A	3.34" (85mm)	.578" Dia.	.113"	.500"
24 mm X .58" Ext.	4801-6288	2.93" (74mm)	.672" Dia.	.590"	.580"
24 mm X 5/8" Ext. Surface Dr.	4805-6134	3.11" (78mm)	.672" Dia.	.750"	.500"
24 mm X 1-3/8" Ext.	4801-6274	3.76" (95mm)	.672" Dia.	.937"	1.063"
24 mm X 2-1/4" Ext. Fast Lead	4801-6297	4.64" (117mm)	.672" Dia.	1.697"	1.187"
24 mm X 2-1/4" Ext. Surface Dr.	4805-6149	4.64" (117mm)	.672" Dia.	1.667"	1.187"

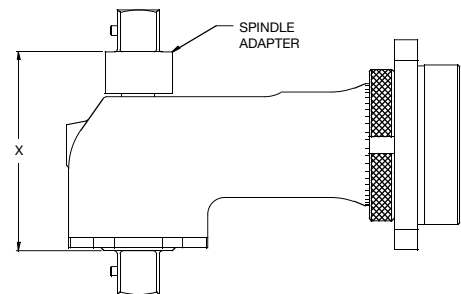


STANDARD HEAD



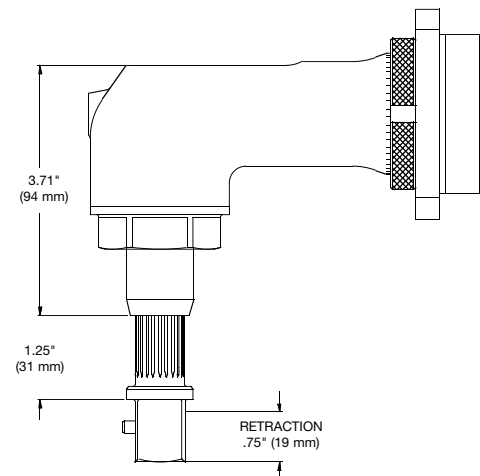
BOLT CLEARANCE

Description	Output Spindle	Spindle Adapter	"X" Dimension
Double End			
** 1/2" Square Drive	4801-7154	1260-1145A	2.94" (75mm)
5/8" Square Drive	4805-7118	4805-7119	2.37" (60mm)



STANDARD HEAD

Description	Output Spindle
Sliding Spindle	
* 3/4" Square Drive (standard)	4805-7109
3/4" Square Drive x 3" Extension	4805-6126
3/4" Square Drive x 5.7" Extension	4805-6131
3/4" Square Drive x 9.7" Extension	4805-6132
5/8" Square Drive	4805-7138
1/2" Square Drive	4805-7122
1/2" Square Drive x 1.25" Extension	4805-7130
1/2" Square Drive x 3" Extension	4805-7123
1/2" Square Drive x 4.7" Extension	4805-6145



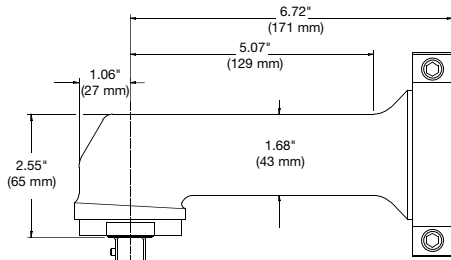
STANDARD HEAD

* With Holding Feature
** Non-Reversible only

Right Angle Heads

4503 SERIES

Torque Reaction Adapter Required.

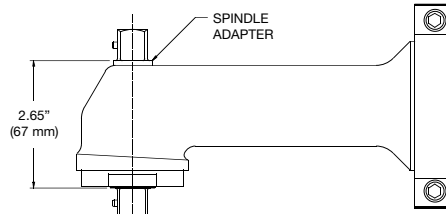


STANDARD HEAD

Description	Output Spindle
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Single End

* 3/4" Square Drive	4805-7109
*1/2" Square Drive	4503-7114
*5/8" Square Drive	4503-7115
3/4" Square Drive	4503-7126
3/4" Square Drive w/ Ball Retainer	4503-7129

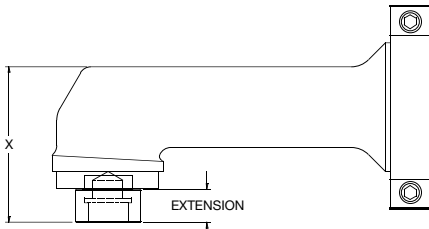


STANDARD HEAD

Description	Output Spindle	Spindle Adapter
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Double End

**5/8" Square Drive	4503-7117	4503-7118
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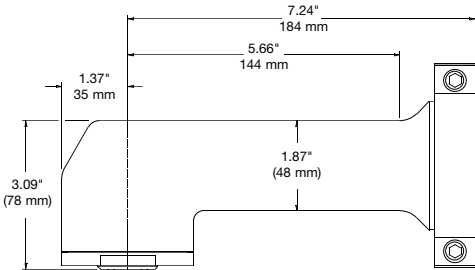


STANDARD HEAD

Hex Sockets	Output Spindle	"X" Dimension	Bolt Clearance	Bolt Depth	Hex Depth
15/16" X 3/4" Ext.	4503-7122	3.27" (73mm)	.656" Dia.	.250"	.562
15/16" X 1- 5/16" Ext.	4503-7124	3.83" (97mm)	.656" Dia.	.250"	1.125
1-5/16" X 1- 3/16" Ext.	4503-6132	3.71" (94mm)	.937" Dia.	.437"	.500
15 mm X 3/8" Ext.	4515-7106	2.77" (70mm)			.500
21 mm X 3/4" Ext.	4503-7125	3.21" (82mm)	.625" Dia.	.375"	.500
24 mm X 1-1/8" Ext.	4503-7127	3.64" (93mm)	.656" Dia.	.687"	.687
24 mm X 1" Ext.	4503-7128	3.51" (89mm)	.656" Dia.	.297"	.812

4501 SERIES

Torque Reaction Adapter Required.

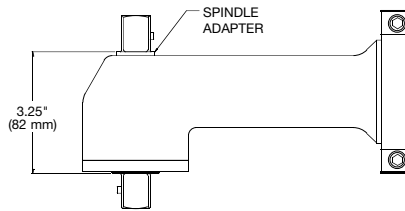


STANDARD HEAD

Description	Output Spindle
-------------	----------------

Single End

*5/8" Square Drive	4501-7160
*3/4" Square Drive	4501-7161
*3/4" Square Drive Hollow Spindle	4501-7170
3/4" Square Drive w/ Ball Retainer	4501-7174

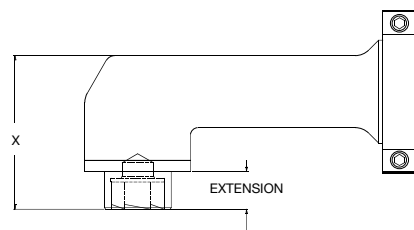


STANDARD HEAD

Description	Output Spindle	Spindle Adapter
-------------	----------------	-----------------

Double End

3/4" Square Drive	4501-7162	4501-7163
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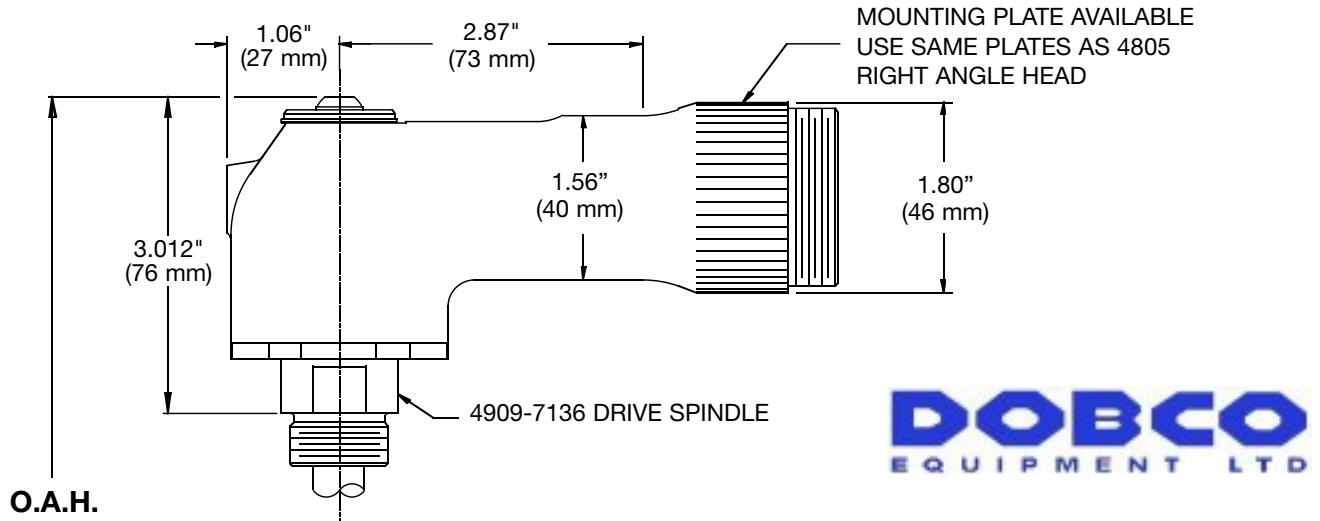


STANDARD HEAD

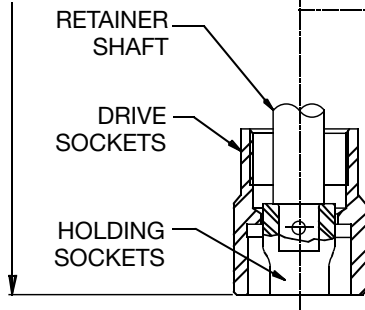
Hex Sockets	Output Spindle	"X" Dimension	Bolt Clearance	Bolt Depth	Hex Depth
30 mm X .98" Ext. Fast Ld.	4501-6177	4.00" (101mm)	.812" Dia.	.800"	.800"
30 mm X 1-1/2" Ext. Fast Ld.	4501-6179	4.50" (114mm)	.812" Dia.	.920"	.800"

* With Holding Feature
** Non-Reversible only

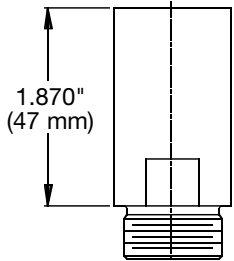
4909/5415 SERIES



O.A.H.

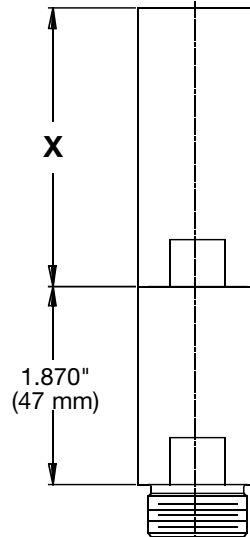


**STANDARD
HOLD-N-DRIVE
RIGHT ANGLE HEAD
O.A.H. - 4.56"**



**EXTENDED
HOLD-N-DRIVE
RIGHT ANGLE HEAD
O.A.H. - 6.43"**

**EXTENSION
ADAPTER
4909-7151**



**EXTENSION
ADAPTERS
4909-7162 OR
4909-7209
SEE CHART
BELOW FOR
DIMENSION
"X"**

**EXTENSION
ADAPTER
4909-7151**

**SEE PAGE 34 FOR ALL
AVAILABLE HEX DRIVE SOCKETS**

**SEE PAGES 34 & 35 FOR ALL
AVAILABLE HOLDING SOCKETS
AND REQUIRED RETAINING
SHAFTS**

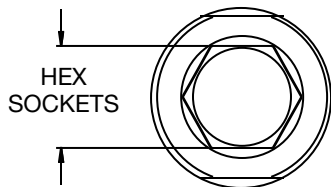
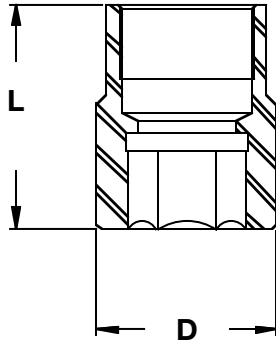
**1" RETRACTION ON ALL
HOLD-N-DRIVE HEADS**

EXTENSION ADAPTER	"X" DIMENSION	O.A.H.
4909-7162	4.13"	10.57"
4909-7209	3.62"	10.06"

**SPECIAL EXTENDED "HDX"
HOLD-N-DRIVE RIGHT ANGLE HEAD
ADD "X" TO THE MODEL NUMBER
USE RETAINER SHAFT 4909-7163
SEE CHART FOR O.A.H.**

Right Angle Heads

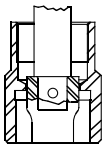
HEX DRIVE SOCKETS



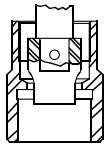
HOLDING SOCKETS

HEX SIZE	HEX DRIVE PART NO.	"D" DIMENSION	"L" DIMENSION
9/16"	4909-7114	1.11	1.56
5/8" (16 mm)	4909-7130	1.11	1.56
11/16"	4909-7115	1.11	1.56
3/4"	4909-7120	1.25	1.56
3/4" (19 mm) Ext.*	4909-7139	1.25	2.86
13 mm	4909-7192	1.11	1.56
14 mm	4909-7175	1.11	1.56
15 mm**	4909-7144	1.11	1.06
15 mm	4909-7112	1.11	1.56
17 mm	4909-7177	1.11	1.56
18 mm	4909-7118	1.25	1.56
21 mm	4909-7119	1.25	1.56
22 mm	4909-7176	1.25	1.56
24 mm	4909-7147	1.39	1.56
24 mm (Fast Lead)	4909-7169	1.39	1.56

* ADD 1.29" (33 mm) to Overall Height
 ** SUBTRACT .50" (12 mm) from Overall Height



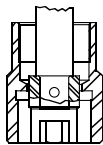
SHOWN WITH LONG
RETAINER SHAFT



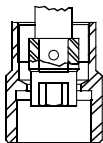
SHOWN WITH SHORT
RETAINER SHAFT

HOLDING SOCKET OVAL

Socket Size	Socket Part No.	3-1/2" Retainer Shaft	4" Retainer Shaft	5-3/8" Retainer Shaft	5-7/8" Retainer Shaft
15/64 X 21/64"	4909-9123	4909-8138	4909-8135	4909-7152	4909-7153
1/4 X 5/16"	4909-9117	4909-8138	4909-8135	4909-7152	4909-7153
1/4 X 5/16"	4909-9173	4909-8138	4909-8135	4909-7152	4909-7153
3/8 X 5/16"	4909-8149	4909-8138	4909-8135	4909-7152	4909-7153
13/32 X 5/16"	4909-8198	4909-8138	4909-8135	4909-7152	4909-7153
6 mm x 8 mm	4909-9204	4909-8138	4909-8135	4909-7152	4909-7153
8 mm x 10 mm	4909-8184	4909-8138	4909-8135	4909-7152	4909-7153



SHOWN WITH LONG
RETAINER SHAFT



SHOWN WITH SHORT
RETAINER SHAFT

HOLDING SOCKET HEX

Socket Size	Socket Part No.	3-1/2" Retainer Shaft	4" Retainer Shaft	5-3/8" Retainer Shaft	5-7/8" Retainer Shaft
1/4"	9465-0003	4909-8138	4909-8135	4909-7152	4909-7153
1/4"	4909-8155	4909-8138	4909-8135	4909-7152	4909-7153
5/16"	4909-8156	4909-8138	4909-8135	4909-7152	4909-7153
5 mm	4909-8186	4909-8138	4909-8135	4909-7152	4909-7153
7 mm	4909-8208	4909-8138	4909-8135	4909-7152	4909-7153
8 mm	4909-8148	4909-8138	4909-8135	4909-7152	4909-7153
9 mm	4909-8207	4909-8138	4909-8135	4909-7152	4909-7153
10 mm	4909-8179	4909-8138	4909-8135	4909-7152	4909-7153
10 mm	4909-8174	4909-8138	4909-8135	4909-7152	4909-7153
11 mm	4909-8180	4909-8138	4909-8135	4909-7152	4909-7153
12 mm	4909-8182	4909-8138	4909-8135	4909-7152	4909-7153

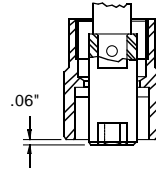
* With Holding Feature
 ** Non-Reversible only

Right Angle Heads

HOLDING SOCKETS

EXTENDED SOCKET HEX

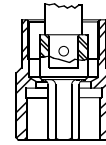
Socket Size	Socket Part No.	3-1/2" Retainer Shaft	4" Retainer Shaft	5-3/8" Retainer Shaft	5-7/8" Retainer Shaft
3/8 X 5/16"	4909-8150	4909-8138		4909-7152	
8 mm	4909-8206	4909-8138		4909-7152	
10 mm	4909-8132	4909-8138		4909-7152	



SHOWN WITH LONG
RETAINER SHAFT

HOLDING BIT HEX (MALE)

Socket Size	Socket Part No.	3-1/2" Retainer Shaft	4" Retainer Shaft	5-3/8" Retainer Shaft	5-7/8" Retainer Shaft
1/4"	4909-8126	4909-8138		4909-7152	
5/16" (8 mm)	4909-8156	4909-8138		4909-7152	
3/8"	4909-8127	4909-8138		4909-7152	
5 mm	4909-8157	4909-8138		4909-7152	
6 mm	4909-8125	4909-8138		4909-7152	
7 mm	4909-8124	4909-8138		4909-7152	
10 mm	4909-8201	4909-8138		4909-7152	
(T25)	4908-8066	4909-8138		4909-7152	
(T40) IP	4909-8191	4909-8138		4909-7152	
(T40) IP	4909-8195	4909-8138		4909-7152	
(T40)	4909-9171	4909-8138		4909-7152	
(T45)	4909-9154	4909-8138		4909-7152	
(T50)	4909-9146	4909-8138		4909-7152	



SHOWN WITH LONG
RETAINER SHAFT

LONG ANGLE HEAD

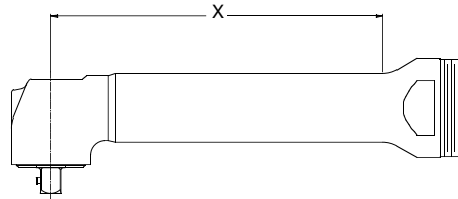
OUTPUT SPINDLE OPTIONS

SAME AS SHOWN FOR STANDARD
LENGTH ANGLE HEADS

TO ORDER

ADD "X" (EXTENDED) TO MODEL NUMBER.

EXAMPLES: N54LAHX30
N100LRAXT21

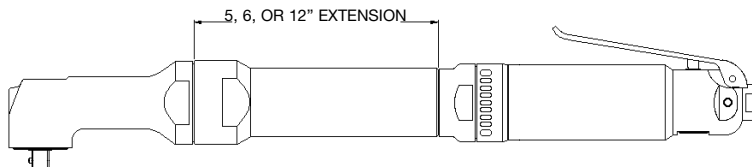


RIGHT ANGLE HEAD SERIES

Model Number	Length "X"		Use With
	in.	mm	
5750	5.76	146	52 & 54 SERIES ANGLE NUTRUNNERS
5701	5.76	146	52 & 54 SERIES ANGLE NUTRUNNERS
5714	4.25	108	52 & 54 SERIES ANGLE NUTRUNNERS
4328	4.25	108	100 & 101 SERIES ANGLE NUTRUNNERS



RIGHT ANGLE HEAD EXTENSIONS



TO ORDER

ADD "NX" TO MODEL NUMBER,
WHERE N = LENGTH OF EXTENSION

EXAMPLES: N54LAH5X30
N100LAHT12X170

Model Numbers	Extension	Use With
5750, 5701, 5714, 5720	5"	52 & 54 SERIES ANGLE NUTRUNNERS
4328, 4801, 4805	6 OR 12"	100 & 101 SERIES ANGLE NUTRUNNERS
4909	6 OR 12"	100 & 101 SERIES HOLD-N-DRIVE NUTRUNNERS
4503, 4501	6"	200 SERIES ANGLE NUTRUNNERS

Fixtured Nutrunners

ROTOR TOOL®

The most effective and complete line of fixtured nutrunners in the world can be found in the Rotor Tool line. A streamlined design and single point connection make integration easy. An unequalled offering ensures that a Rotor Tool fixtured nutrunner can be found for your application.

■ Simple Tool Removal

Rotor Tool Fixtured Nutrunners were designed so that they can easily be removed from the fixture for periodic preventative maintenance. A single connector in the back of the tool allows the tool to be quickly disconnected from the control source.

Removing just a few bolts from the mounting plate allows the tool to be quickly pulled through a simple pilot hole. Removal and replacement can occur in less than a minute!

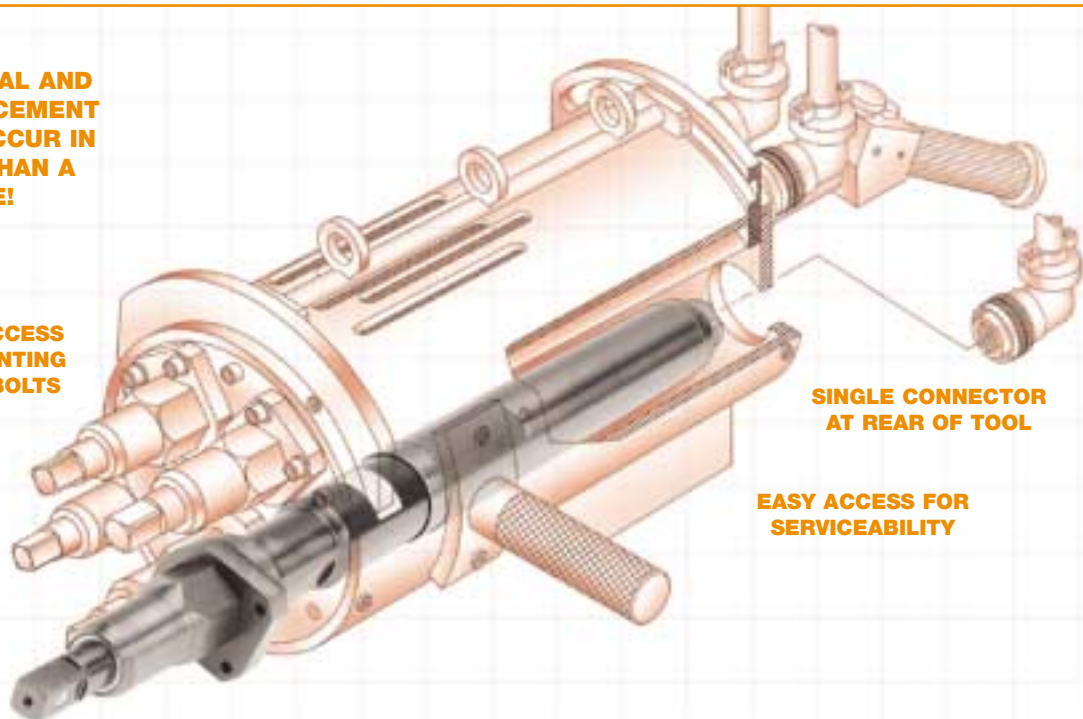


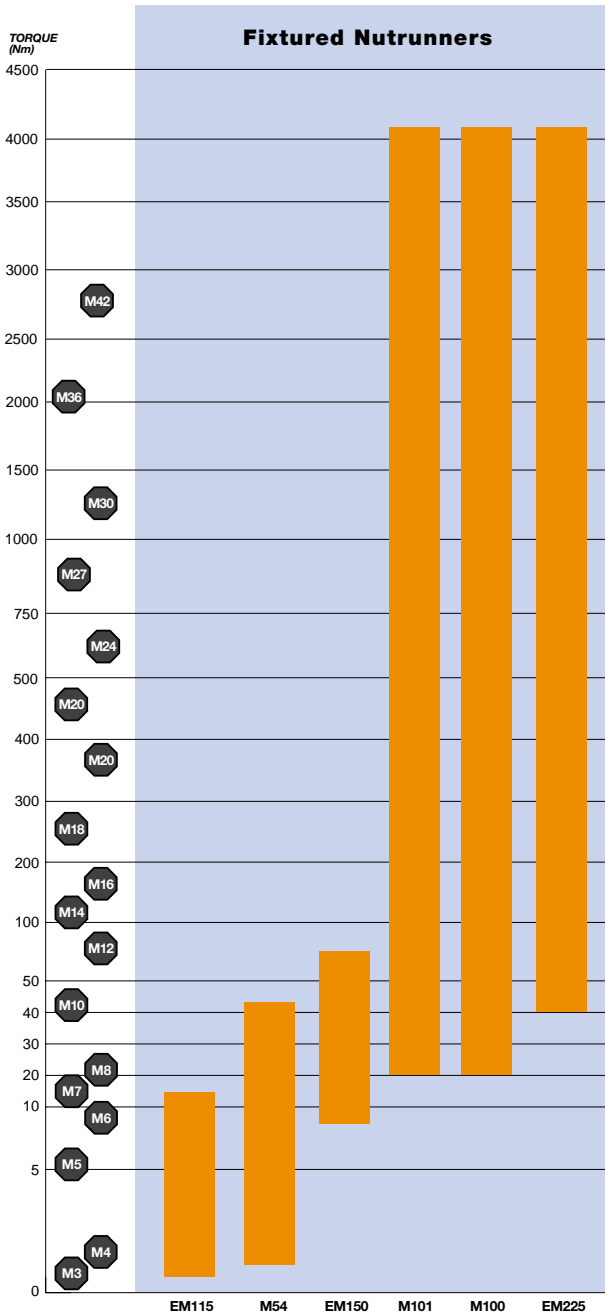
**REMOVAL AND
REPLACEMENT
CAN OCCUR IN
LESS THAN A
MINUTE!**

**EASY ACCESS
TO MOUNTING
PLATE BOLTS**

**SINGLE CONNECTOR
AT REAR OF TOOL**

**EASY ACCESS FOR
SERVICEABILITY**





■ **Diverse Output Spindles**

With the most diverse offering of square drives, extensions, retractions, offset heads, and mounting plates, Rotor Tool has the answer for those challenging fixtured applications.

■ **Automatic Cycle**

The Rotor Automatic Cycle feature can be used on all non-electronically controlled pneumatic fixtured tools to further enhance the versatility of these tools. It enables the tool designer to incorporate custom features into his designs with minimal use of expensive and bulky air logic circuits.

The basic function of the auto-cycle feature is to start one or more tools remotely, and have it “latch” on until the tightening cycle has been completed. This basic function is useful in eliminating loose fasteners due to the operator stopping the cycle before it has been completed. This can also be used to free up the operator so that he can initiate the cycle and go on to other tasks. Another optional feature that can be added to this function is a low speed jog that will facilitate getting the sockets onto the fasteners. Auto cycle tools also have a cycle complete signal port that can be used to operate back-up cylinders, ink marking systems, or other system interlocks.

Fixtured Nutrunners

Brushless DC Fixtured In-line Nutrunners



Torque Range:
7 – 4068 Nm
5 – 3000 Ft. Lbs.

Bolt Size:
M5 – M42
#10 – 1 3/4"

- DC brushless motor
- Remote reversible
- Torque and angle control



Model Number	Bolt Size		Square Drive (in)	Retraction (in)	Torque		Free Speed	Length to back of mounting plate		Weight		Front End Design	Ordering Number
	in	mm			ft lb	Nm		in	mm	lb	kg		
STRAIGHT													
EM115RYSGG5	#10	M5	3/8	.75	5	7	1250	8.9	226	2.2	1.0	V	31155002
EM115RYSGG10	1/4	M6	3/8	.75	10	14	645	8.9	226	2.2	1.0	V	31155004
EM150RYSGG17	5/16	M8	3/8	.69	17	23	585*	13.8	351	6.1	2.8	A	32555053
EM150RYSGG35	7/16	M10	3/8	.69	35	47	280*	13.8	351	6.1	2.8	A	32555057
EM225RYSGG55	1/2	M12	1/2	.69	55	75	505*	15.8	401	10.4	4.8	F	35515016
EM225RYSGG88	9/16	M14	1/2	.69	88	119	320*	15.8	401	10.4	4.8	F	35515020
EM225RYSGG118	5/8	M14	1/2	.69	118	160	235*	15.8	401	9.9	4.5	F	355150152
EM225RYSG210	3/4	M16	3/4	.75	210	285	125*	15.2	386	12.3	5.6	K	35525038
EM225RYSG450	1	M22	3/4	.75	450	610	55*	15.6	396	12.7	5.8	M	35525052
EM225RYSG625	1 1/8	M24	1	1.0	625	848	37*	18.6	472	22.0	10.0	S	35525026
EM225RYSG1050	1 1/4	M30	1	1.0	1050	1424	22*	18.6	472	22.0	10.0	S	35525028
EM225RYSG1520	1 1/2	M36	1	1.0	1520	2061	15*	18.6	472	22.0	10.0	S	35525030
EM225RYGM3000*	1 3/4	M42	1/2	FIXED	3000	4068	7*	19.3	489	44.0	20.0		35825002
OFFSET HEAD													
EM150RFOGG7	1/4	M6	3/8	.75	7	9	1140*	18.6	472	8.9	4.1	C	32605004
EM150RFOGG16	5/16	M8	3/8	.75	16	22	585*	18.6	472	8.9	4.1	C	32605006
EM150RFOGG33	3/8	M10	3/8	.75	33	45	280*	18.6	472	8.9	4.1	C	32605011
EM225RFOGG56	3/8	M10	1/2	.75	56	76	450*	20.4	518	13.2	6.0	C	35715007
EM225RFOHGG90	9/16	M14	1/2	1.0	90	122	290*	15.6	396	16.2	7.4	U	35715025
EM225RFOG143	5/8	M16	3/4	1.0	143	194	175*	18.3	465	21.6	9.8	U	35735002

* With 230 volts to controller
• Slave drive reaction bar standard

STANDARD EQUIPMENT
Torque reaction mounting plate
Sliding output spindle (unless noted)

OPTIONAL EQUIPMENT
Order tool cables separately - see page 57.
Alternate mounting plates - see pages 43-53
Alternate output spindles - see pages 43-49
Resolver-based motors for 150 and 225 Series

Fixtured Nutrunners

Brushless DC Fixtured Angle Nutrunners



ROTOR TOOL®

Torque Range:
15 – 1702 Nm
11 – 1255 Ft. Lbs.

Bolt Size:
M6 – M30
1/4" – 1 3/8"

- DC brushless motor
- Remote reversible
- Torque and angle control

DOBCO

EQUIPMENT LTD

Model Number	Bolt Size		Square Drive (in)	Torque		Free Speed*	Length		Weight		Angle Head	Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg		
RIGHT ANGLE												
EM150RAYGG11	1/4	M6	3/8	11	15	1060	16.0	406	6.6	3.0	5701	32525070
EM150RAYGG17	5/16	M8	3/8	17	23	610	16.0	406	6.6	3.0	5701	32525071
EM150RAHYGG26	3/8	M8	3/8	26	35	390	16.2	412	6.9	3.1	5714	32525041
EM150RAHYGG36	7/16	M10	3/8	36	49	275	16.2	412	6.9	3.1	5714	32525043
EM150RAHHYGG65	1/2	M12	1/2	65	88	150	17.4	442	8.2	3.7	5720	32525047
EM225RAYGG92	9/16	M14	1/2	92	125	275	20.5	521	12.5	5.7	4801	35565045
EM225RAHYGG151	5/8	M16	3/4	151	205	170	20.5	521	13.4	6.1	4805	35565091
EM225RAYG230	3/4	M20	5/8	230	312	105	25.3	640	20.4	9.3	4503	35765002
EM225RAYG420	7/8	M22	3/4	420	570	60	26.0	678	22.0	10.0	4501	35765003
EM225RAYGG56MR765•	1 1/4	M27	1	765	1037	28	19.5	495	23.1	10.5	4801	35565070
EM225RAYGG92MR1255•	1 3/8	M30	1	1255	1702	17	19.5	495	23.1	10.5	4801	35565071

• Slave drive reaction bar standard

* With 230 volts to controller

STANDARD EQUIPMENT

Torque reaction mounting plate
Fixed output spindle

OPTIONAL EQUIPMENT

Order tool cables separately - see page 57

Alternate output spindles, including sliding options - see pages 23-33
Resolver-based motors

Fixtured Nutrunners

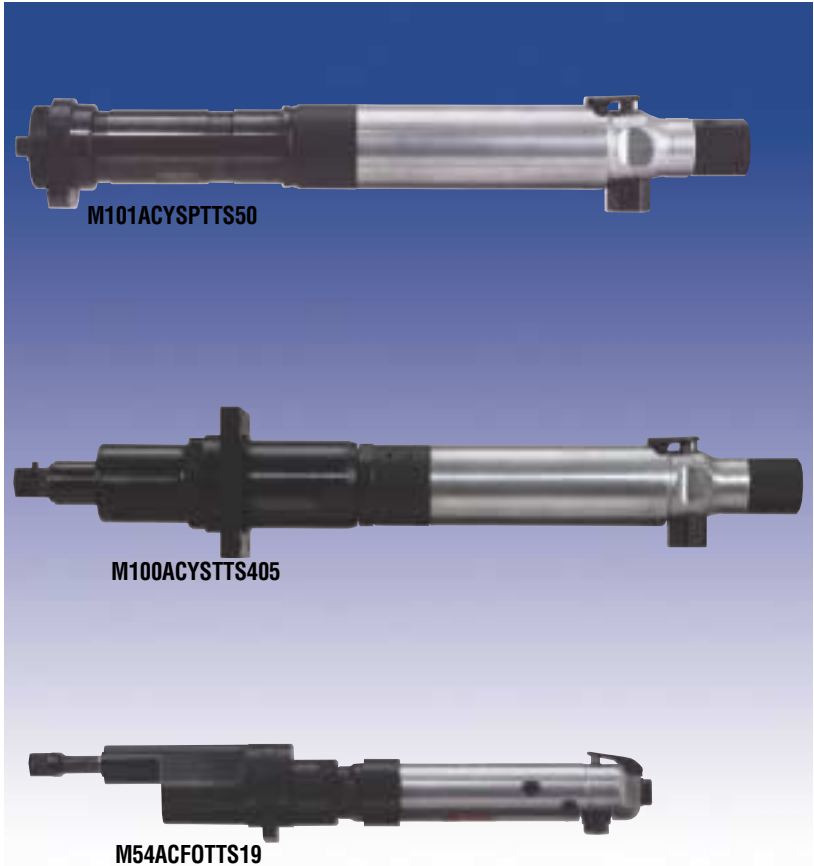
Pneumatic Non-Instrumented In-line Fixtured Nutrunners



Torque Range:
7 – 1980 Nm
5 – 1460 Ft. Lbs.

Bolt Size:
M5 – M36
#10 – 1 1/2"

- Automatically latching start
- Torque signals



Model Number	Bolt Size		Square Drive (in)	Retraction (in)	Torque		Free Speed	Length to back of mounting plate		Weight		Front End Design	Ordering Number
	in	mm			ft lb	Nm		in	mm	lb	kg		
STRAIGHT - AUTOMATIC CYCLE													
M54ACYSTTS5	#10	M5	3/8	.69	5	7	1485	11.6	294	3.48	1.58	A	54945024
M54ACYSTTS11	1/4	M6	3/8	.69	11	15	690	12.17	309	3.67	1.67	A	54945027
M54ACYSTTS30	3/8	M8	3/8	.69	30	41	255	12.17	309	3.67	1.67	A	54945031
M101ACYSPTTS50	7/16	M10	1/2	.69	50	68	360	15.88	403	7.4	3.35	F	44505005
M101ACYSPTTS65	1/2	M12	1/2	.69	65	88	265	15.88	403	7.4	3.35	F	44505006
M100ACYSTTS90	9/16	M14	1/2	.69	90	122	275	15.88	403	7.5	3.41	D	49565007
M100ACYSTTS190	3/4	M16	3/4	.75	190	257	125	16.78	426	12.0	5.45	K	49565060
M100ACYSTTS305	7/8	M20	3/4	1 1/2	305	413	70	17.18	436	12.4	5.68	M	49945040
M100ACYSTTS405	7/8	M20	3/4	1 1/2	405	549	55	17.18	436	12.4	5.68	M	49945056
M100ACYSTTS680	1 1/8	M24	1	1	680	922	30	17.4	442	25.0	11.3	S	49565080
M100ACYSTTS1080	1 1/4	M30	1	1	1080	1464	19	17.4	442	25.0	11.3	S	49565081
M100ACYSTTS1460	1 1/2	M36	1	1	1460	1980	14	17.4	442	25.0	11.3	S	49565082
OFFSET - AUTOMATIC CYCLE													
M54ACFOTTS15	5/16	M6	1/2	.75	15	20	575	10.21	259	6.46	2.93	C	54915022
M54ACFOTTS19	5/16	M8	1/2	.75	19	26	455	10.21	259	6.46	2.93	C	54915027
M54ACFOTTS32	3/8	M10	1/2	.75	32	43	300	10.21	259	6.46	2.93	C	54915021
M100ACFOTTS37	7/16	M10	1/2	.75	37	50	590	13.87	352	9.2	4.18	C	49C35001
M100ACFOTTS54	1/2	M10	1/2	.75	54	73	405	13.87	352	9.2	4.18	C	49C35002

STANDARD EQUIPMENT
Torque reaction mounting plate
Sliding output spindle

OPTIONAL EQUIPMENT
Alternate mounting plates - see pages 43-53
Alternate output spindles - see pages 43-49
Transducerized models
Encoders for angle control

Fixtured Nutrunners

Pneumatic Instrumented In-line Fixtured Nutrunners



ROTOR TOOL®

Torque Range:
7 – 1980 Nm
5 – 1460 Ft. Lbs.

Bolt Size:
M5 – M36
#10 – 1 1/2"

- Transducerized
- Automatically latching start
- Torque signals

DOBCO

EQUIPMENT LTD

Model Number	Bolt Size		Square Drive (in)	Retraction (in)	Torque		Free Speed	Length to back of mounting plate		Weight		Front End Design	Ordering Number
	in	mm			ft lb	Nm		in	mm	lb	kg		
STRAIGHT - AUTOMATIC CYCLE													
M54ACYSTTSGG5	#10	M5	3/8	.69	5	7	1485	13.09	332	4.71	2.14	A	54925004
M54ACYSTTSGG11	1/4	M6	3/8	.69	11	15	690	13.09	332	4.9	2.22	A	54925007
M54ACYSTTSGG30	3/8	M8	3/8	.69	30	41	255	13.09	332	4.9	2.22	A	54925011
M101ACYSPTTSGG50	7/16	M10	1/2	.69	50	68	360	17.45	444	9.0	4.1	F	44515005
M101ACYSPTTSGG65	1/2	M12	1/2	.69	65	88	265	17.45	444	9.0	4.1	F	44515006
M100ACYSTTSGG90	9/16	M14	1/2	.69	90	122	275	17.45	444	9.1	4.13	D	49535032
M100ACYSTTSCG190	3/4	M16	3/4	.75	190	257	125	18.41	410	13.4	6.08	L	49945063
M100ACYSTTSCG305	7/8	M20	3/4	1 1/2	305	413	70	18.99	425	13.8	6.27	M	49945055
M100ACYSTTSCG405	7/8	M20	3/4	1 1/2	405	549	55	18.99	425	13.8	6.27	M	49945056
M100ACYSTTSG680	1 1/8	M24	1	1	680	922	30	17.39	442	27.2	12.4	S	49575060
M100ACYSTTSG1080	1 1/4	M30	1	1	1080	1464	19	17.39	442	27.2	12.4	S	49575061
M100ACYSTTSG1460	1 1/2	M36	1	1	1460	1980	14	17.39	442	27.2	12.4	S	49575062
OFFSET - AUTOMATIC CYCLE													
M54ACFOTTSGG15	5/16	M6	1/2	.75	15	20	575	12.68	322	7.7	3.5	C	54895014
M54ACFOTTSGG19	5/16	M8	1/2	.75	19	26	455	12.68	322	7.7	3.5	C	54895002
M54ACFOTTSGG32	3/8	M10	1/2	.75	32	43	300	12.68	322	7.7	3.5	C	54895015
M100ACFOTTSGG37	7/16	M10	1/2	.75	37	50	590	17.27	439	10.8	4.9	C	49B45010
M100ACFOTTSGG54	1/2	M10	1/2	.75	54	73	405	17.27	439	10.8	4.9	C	49B45011

STANDARD EQUIPMENT

Torque reaction mounting plate
Sliding output spindle
36" tool cable whip with 6 pin connector

OPTIONAL EQUIPMENT

Alternate mounting plates - see pages 43-53
Alternate output spindles - see pages 43-49
Encoders for angle control

Fixtured Nutrunners

Pneumatic Instrumented In-line Fixtured Nutrunners



Torque Range:
12 – 1980 Nm
9 – 1460 Ft. Lbs.

Bolt Size:
M6 – M36
1/4" – 1 1/2"

- Electronically controlled solenoid valve
- Non-reversible
- Torque control



Model Number	Bolt Size		Square Drive (in)	Retraction (in)	Torque		Free Speed	Length to back of mounting plate		Weight		Front End Design	Ordering Number
	in	mm			ft lb	Nm		in	mm	lb	kg		
STRAIGHT - ELECTRONIC TORQUE CONTROL													
M54YSGGCL9	1/4	M6	3/8	.69	9	12	855	14.03	356	5.0	2.27	A	54A55006
M54YSGGCL30	3/8	M8	3/8	.69	30	41	255	14.03	356	5.0	2.27	A	54A55011
MS100YSGGCL43	7/16	M10	1/2	.69	43	58	565	18.75	477	9.2	4.18	F	49A35051
MS100YSGGCL58	1/2	M12	1/2	.69	58	79	425	18.75	477	9.2	4.18	F	49A35052
MS100YSGCL112	5/8	M14	3/4	.75	112	152	210	17.72	450	13.7	6.22	K	49A25006
MS100YSGCL153	5/8	M16	3/4	.75	153	207	150	17.72	450	13.7	6.22	K	49A25008
MS100YSGCL255	3/4	M20	3/4	.75	255	345	90	17.72	450	13.7	6.22	K	49A25010
MS100YSGCL470	1	M22	1	1.0	470	637	43	21.59	548	26.9	12.23	S	49A25013
MS100YSGCL680	1 1/8	M24	1	1.0	680	922	30	21.59	548	26.9	12.23	S	49A25015
MS100YSGCL920	1 1/4	M27	1	1.0	920	1248	22	21.59	548	26.9	12.23	S	49A25016
MS100YSGCL1340	1 3/8	M30	1	1.0	1340	1817	15	21.59	548	26.9	12.23	S	49A25018
MS100YSGCL1460	1 1/2	M36	1	1.0	1460	1980	14	21.59	548	26.9	12.23	S	49A25019
OFFSET - ELECTRONIC TORQUE CONTROL													
M54FOGGCL12	5/16	M6	3/8	.75	12	16	725	14.07	357	7.8	3.54	C	54C35002
M54FOGGCL19	5/16	M8	3/8	.75	19	26	455	14.07	357	7.8	3.54	C	54C35003
MS100FOGGCL29	3/8	M8	1/2	.75	29	39	755	18.56	471	11.0	4.99	C	49B35008
MS100FOGGCL54	1/2	M10	1/2	.75	54	73	405	18.56	471	11.0	4.99	C	49B35009
MS100FOHGGCL65	1/2	M12	1/2	1	65	88	350	18.56	471	13.0	5.9	U	49B35003
MS100FOHGGCL80	9/16	M12	1/2	1	80	108	290	18.56	471	13.0	5.9	U	49B35005
MS100FOHGGCL98	9/16	M14	1/2	1	98	133	225	18.56	471	13.0	5.9	U	49B35007
MS100FOGCL130	5/8	M14	3/4	1	130	176	175	20.03	509	15.0	6.8	U	49B15002
MS100FOGCL153	5/8	M16	3/4	1	153	207	149	20.03	509	15.0	6.8	U	49B15003

STANDARD EQUIPMENT

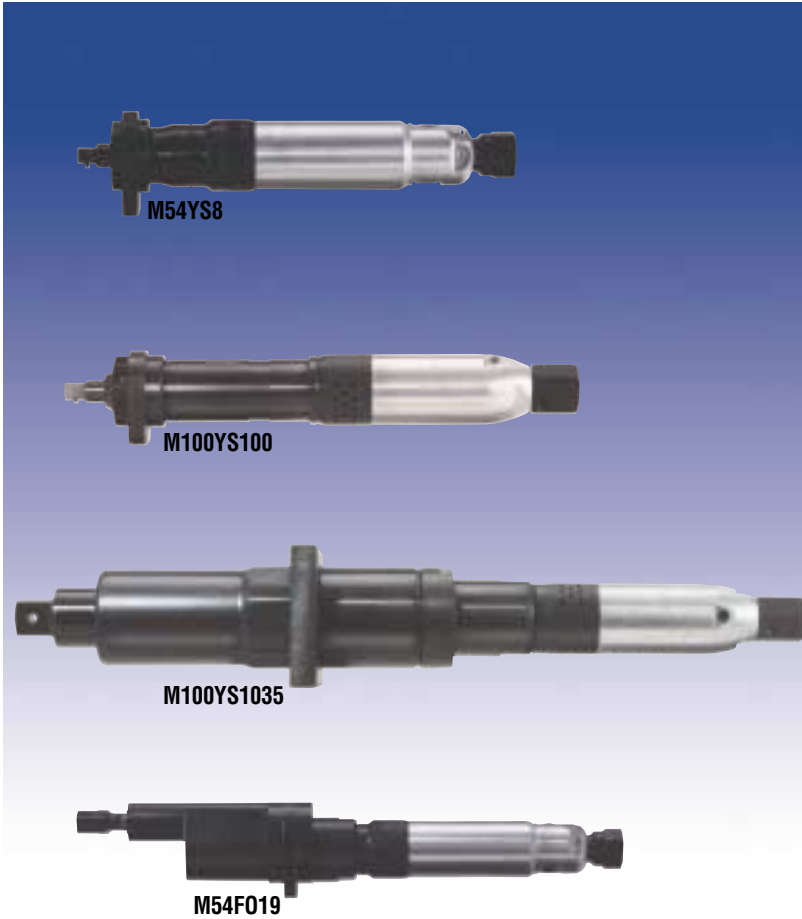
Torque reaction mounting plate
Sliding output spindle
36" tool cable whip with 19 pin connector

OPTIONAL EQUIPMENT

Alternate mounting plates - see pages 43-53
Alternate output spindles - see pages 43-49
Encoders for angle control

Fixtured Nutrunners

Pneumatic Non-Instrumented In-line Fixtured Nutrunners



ROTOR TOOL®

Torque Range:
4 – 2034 Nm
3 – 1500 Ft. Lbs.

Bolt Size:
M4 – M36
#10 – 1 1/2"

■ Non-reversible

DOBCO

EQUIPMENT LTD

Model Number	Bolt Size		Square Drive (in)	Retraction (in)	Torque		Free Speed	Length to back of mounting plate		Weight		Front End Design	Ordering Number
	in	mm			ft lb	Nm		in	mm	lb	kg		
STRAIGHT - STALL													
M54YS3	#10	M4	3/8	.69	3	4	3265	9.9	251	3.09	1.4	A	54735001
M54YS8	1/4	M6	3/8	.69	8	11	1120	10.49	266	3.28	1.49	A	54735004
M54YS17	5/16	M8	3/8	.69	17	23	575	10.49	266	3.28	1.49	A	54735006
M54YS35	7/16	M10	3/8	.69	35	47	300	10.49	266	3.28	1.49	A	54735009
M101YSP65	1/2	M12	1/2	.69	65	88	265	12.44	316	6.5	2.95	D	43905005
M100YS100	9/16	M14	1/2	.69	100	136	275	12.44	316	6.5	2.95	D	49025008
M100YS145	5/8	M16	3/4	.75	145	197	180	13.34	339	11.0	5.0	K	49025035
M100YS280	7/8	M20	3/4	.75	280	380	90	13.34	339	11.0	5.0	K	49025033
M100YS445	1	M22	3/4	.75	445	603	50	13.74	349	11.4	5.18	M	49025057
M100YS620	1 1/8	M24	1.0	1.0	620	841	37	13.98	355	22.0	10.0	S	49025061
M100YS1035	1 1/4	M27	1.0	1.0	1035	1403	22	13.98	355	22.0	10.0	S	49025063
M100YS1215	1 3/8	M30	1.0	1.0	1215	1648	19	13.98	355	22.0	10.0	S	49025064
M100YS1500	1 1/2	M36	1.0	1.0	1500	2034	15	13.98	355	22.0	10.0	S	49025065
OFFSET - STALL													
M54F012	5/16	M6	3/8	.75	12	16	725	8.59	218	5.8	2.63	C	54905007
M54F019	5/16	M8	3/8	.75	19	26	455	8.59	218	5.8	2.63	C	54905006
M54F032	3/8	M10	1/2	.75	32	43	300	8.59	218	5.8	2.63	C	54905005

STANDARD EQUIPMENT

Torque reaction mounting plate
Sliding output spindle

OPTIONAL EQUIPMENT

Alternate mounting plates - see page 43-53
Alternate output spindles - see page 43-49
Transducerized models

Fixtured Nutrunners

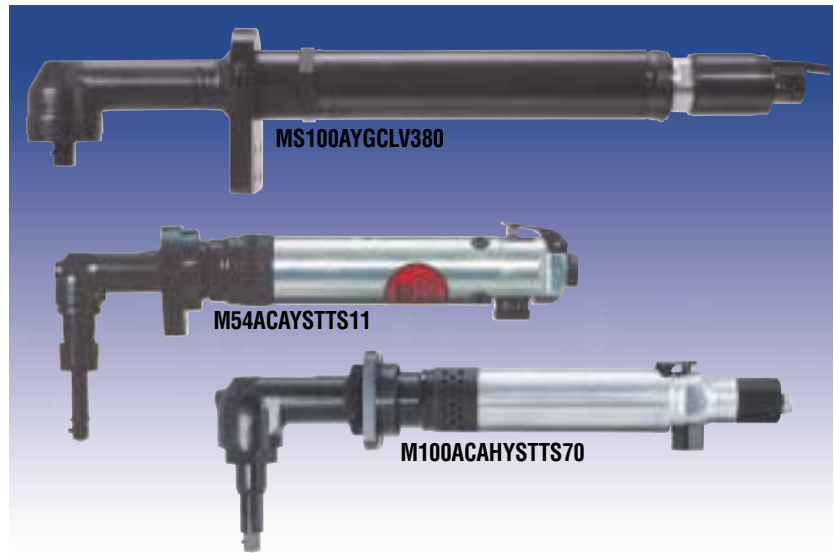
Pneumatic Instrumented/Non-Instrumented Angle Fixtured Nutrunners



Torque Range:
11 – 515 Nm
8 – 380 Ft. Lbs.

Bolt Size:
M6 – M20
1/4" – 7/8"

- Electronically controlled solenoid valve or automatically latching start with torque signals
- Non-reversible
- Torque control



Model Number	Bolt Size		Square Drive (in)	Torque		Free RPM	Length		Weight		Angle Head	Ordering Number
	in	mm		ft lb	Nm		in	mm	lb	kg		
NON-REVERSIBLE - ELECTRONIC TORQUE CONTROL - FIXED SPINDLE												
MS4AYGGCLV11	1/4	M6	3/8	11	15	700	16.29	414	5.6	2.5	5701	54B95009
MS4AHYGGCLV22	3/8	M8	3/8	22	30	365	16.45	417	5.8	2.6	5714	54B95004
MS4AHYGGCLV28	3/8	M8	3/8	28	38	290	16.45	417	5.8	2.6	5714	54B95008
MS100AYGGCLV38	7/16	M10	3/8	38	51	675	21.19	538	9.8	4.5	4328	49A45004
MS100AYGGCLV54	1/2	M10	1/2	54	73	490	22.44	570	9.8	4.5	4801	49A45006
MS100AYGGCLV70	1/2	M12	1/2	70	95	360	22.44	570	9.8	4.5	4801	49A45007
MS100AHYGGCLV105	9/16	M14	5/8	105	142	255	22.48	571	10.1	4.6	4805	49A45011
MS100AHYGGCLV130	5/8	M14	5/8	130	176	200	22.48	571	10.1	4.6	4805	49A45012
MS100AHYGGCLV160	5/8	M16	3/4	160	217	145	22.48	571	10.1	4.6	4805	49A45015
MS100AHYGGCLV195	3/4	M16	3/4	195	264	135	22.48	571	10.1	4.6	4805	49A45016
MS100AYGCLV260	7/8	M20	3/4	260	352	90	27.6	701	12.5	5.7	4501	49C45001
MS100AYGCLV380	7/8	M20	3/4	380	515	60	28.32	719	12.5	5.7	4501	49C45002

Model Number	Bolt Size		Square Drive (in)	Retraction (in)	Torque		Free RPM	Length		Weight		Angle Head	Ordering Number
	in	mm			ft lb	Nm		in	mm	lb	kg		
NON-REVERSIBLE - INSTRUMENTED AUTOMATIC CYCLE - SLIDING SPINDLE													
M54ACAYSTTSGG8	1/4	M6	3/8	1	8	11	990	15.37	390	4.5	2.0	5701	54835019
M54ACAYSTTSGG11	1/4	M6	3/8	1	11	15	700	15.37	390	4.5	2.0	5701	54835020
M54ACAHYSTTSGG22	3/8	M8	3/8	3/4	22	30	365	15.51	394	5.1	2.3	5714	54835011
M54ACAHYSTTSGG28	3/8	M10	3/8	3/4	28	38	290	15.51	394	5.1	2.3	5714	54835005
M100ACAYSTTSGG38	7/16	M10	3/8	3/4	38	51	675	19.06	484	10.7	4.9	4328	49585015
M100ACAYSTTSGG54	1/2	M10	1/2	3/4	54	73	490	19.06	484	10.7	4.9	4801	49585010
M100ACAHYSTTSGG70	1/2	M12	1/2	3/4	70	95	360	19.06	484	10.7	4.9	4805	49585011
M100ACAHYSTTSGG105	9/16	M14	5/8	3/4	105	142	255	22.18	563	11.5	5.2	4805	49585012
M100ACAHYSTTSGG130	5/8	M14	5/8	3/4	130	176	200	22.18	563	11.5	5.2	4805	49585013
M100ACAHYSTTSGG160	5/8	M16	3/4	3/4	160	217	145	22.18	563	11.5	5.2	4805	49585014
M100ACAHYSTTSGG195	3/4	M20	3/4	3/4	195	264	135	22.18	563	11.5	5.2	4805	49585004

NON-REVERSIBLE - NON-INSTRUMENTED AUTOMATIC CYCLE - SLIDING SPINDLE													
M54ACAYSTTS8	1/4	M6	3/8	1	8	11	990	11.47	291	4.3	2.0	5701	54845010
M54ACAYSTTS11	1/4	M6	3/8	1	11	15	700	12.05	306	4.3	2.0	5701	54845015
M54ACAHYSTTS22	3/8	M8	3/8	3/4	22	30	365	13.22	336	4.8	2.2	5714	54845001
M54ACAHYSTTS28	3/8	M10	3/8	3/4	28	38	290	16.37	336	4.8	2.2	5714	54845002
M100ACAYSTTS38	7/16	M10	3/8	3/4	38	51	675	17.62	415	10.2	4.6	4328	49475011
M100ACAYSTTS54	1/2	M10	1/2	3/4	54	73	490	17.67	448	10.2	4.6	4801	49475010
M100ACAHYSTTS70	1/2	M12	1/2	3/4	70	95	360	17.67	449	10.2	4.6	4805	49475008
M100ACAHYSTTS105	9/16	M14	5/8	3/4	105	142	255	17.67	449	11.0	5.0	4805	49475012
M100ACAHYSTTS130	5/8	M14	5/8	3/4	130	176	200	17.67	449	11.0	5.0	4805	49475013
M100ACAHYSTTS160	5/8	M16	3/4	3/4	160	217	145	17.67	449	11.0	5.0	4805	49475014
M100ACAHYSTTS195	3/4	M20	3/4	3/4	195	264	135	17.67	449	11.0	5.0	4805	49475015

STANDARD EQUIPMENT

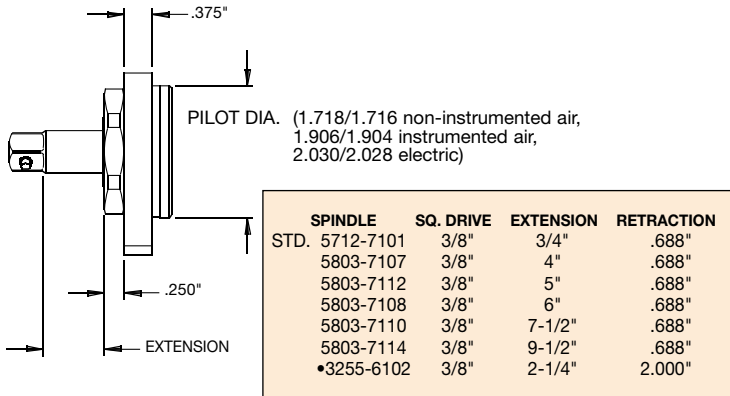
Torque reaction mounting plate
Sliding spindle on auto cycle tools, fixed on control tools

OPTIONAL EQUIPMENT

Alternate output spindles, including sliding options - see pages 23-33

DESIGN A

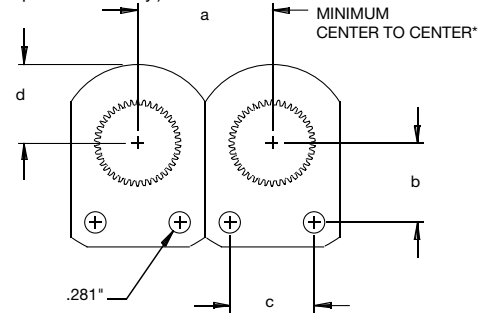
SLIDING SPINDLE/UP TO 35 FT.LBS. (47 Nm)
PNEUMATIC 52, 54 SERIES/ELECTRIC 130,150 SERIES



• Requires extension on the tool which adds 2.93" to "Z" dimension.
* When mounted, ACTUAL center to center cannot be less than largest tool diameter.

STANDARD MOUNTING PLATES

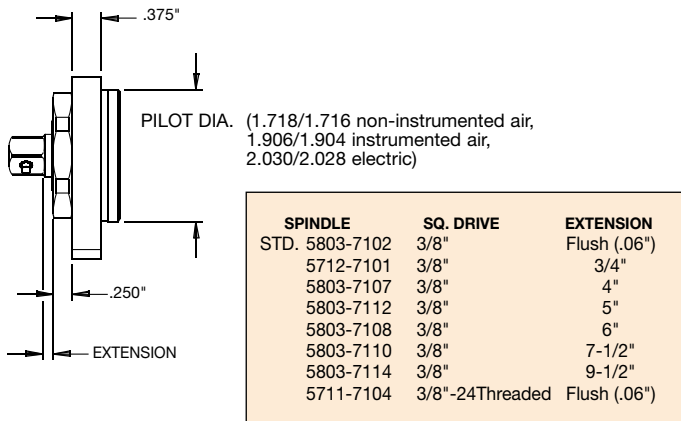
(See Group AA under "Mounting Plates" for additional mounting plate availability.)



	NON-INSTR. AIR 5711-7103	INSTR. AIR 5721-7101	D.C. ELECTRIC 3251-7102
a	1.750"	2.000"	2.125"
b	1.035"	1.191"	1.191"
c	1.095"	1.345"	1.470"
d	1.031"	1.060"	1.125"

DESIGN B

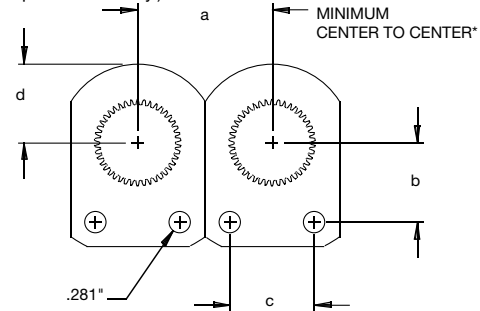
FIXED SPINDLE/UP TO 35 FT.LBS. (47 Nm)
PNEUMATIC 52, 54 SERIES/ELECTRIC 130,150 SERIES



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.

STANDARD MOUNTING PLATES

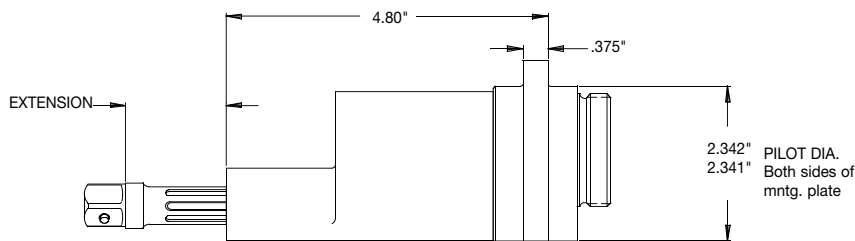
(See Group AA under "Mounting Plates" for additional mounting plate availability.)



	NON-INSTR. AIR 5711-7103	INSTR. AIR 5721-7101	D.C. ELECTRIC 3251-7102
a	1.750"	2.000"	2.125"
b	1.035"	1.191"	1.191"
c	1.095"	1.345"	1.470"
d	1.031"	1.060"	1.125"

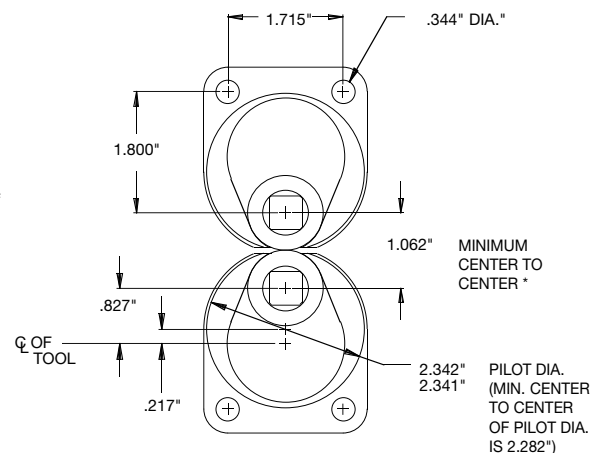
DESIGN C

SLIDING FLANGE OFFSET/UP TO 56 FT.LBS. (76 Nm)
PNEUMATIC 52, 54,100,101 SERIES/ELECTRIC 150, 225 SERIES



SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
52, 54, 150 series			
STD. 4929-7123	3/8"	1-1/2"	.750"
4929-7124	3/8"	4"	.750"
Δ4929-7125 (35 FT-LBS MAX)	3/8"	5-1/2"	.750"
4929-7128	3/8"	5-1/2"	.750"
4929-7122	3/8"	8"	.750"
Δ4926-6127 (35 FT-LBS MAX)	3/8"	8"	.750"
100, 101, 225 series			
STD. 4929-7116	1/2"	1-1/2"	.750"
4929-7129	1/2"	4"	.750"
4929-7107	1/2"	5-1/2"	.750"

STANDARD MOUNTING DIMENSIONS

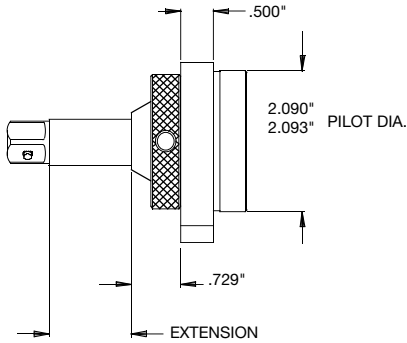


Δ Spindle Diameter reduced to .375" (Special)
* When mounted, ACTUAL center to center cannot be less than largest tool diameter.

Front End Designs

DESIGN D

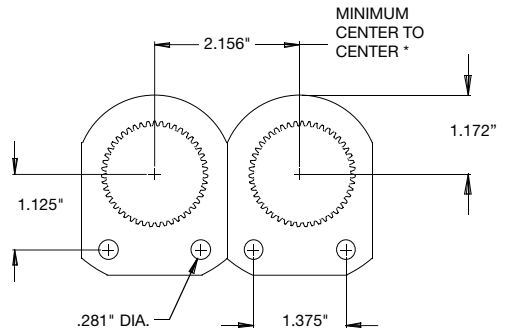
**SLIDING SPINDLE/UP TO 118 FT.LBS. (160 Nm)
PNEUMATIC 100, 101 SERIES (NON-INSTRUMENTED)**



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STD.	4804-7121	1/2"	3/4"	.688"
	4804-7180	1/2"	2-1/2"	.688"
	4804-7185	1/2"	2-3/4"	.688"
	4804-7122	1/2"	4"	.688"
	4804-7165	1/2"	8"	.688"

STANDARD MOUNTING PLATE 4902-7109

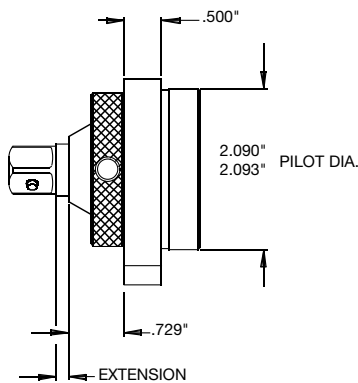
(See Group BB under "Mounting Plates" for additional mounting plate availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN E

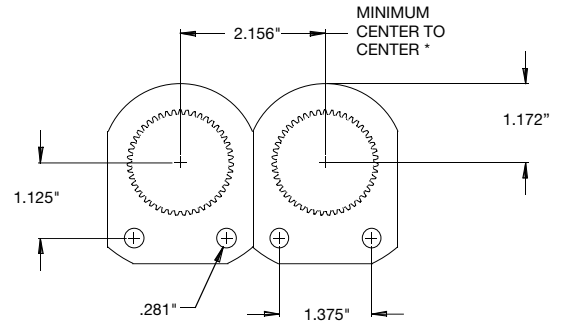
**FIXED SPINDLE/UP TO 118 FT.LBS. (160 Nm)
PNEUMATIC 100, 101 SERIES (NON-INSTRUMENTED)**



	SPINDLE	SQ. DRIVE	EXTENSION
STD.	4804-7123	1/2"	FLUSH
	4804-7121	1/2"	3/4"
	4804-7180	1/2"	2-1/2"
	4804-7185	1/2"	2-3/4"
	4804-7122	1/2"	4"
	4804-7165	1/2"	8"

STANDARD MOUNTING PLATE 4902-7109

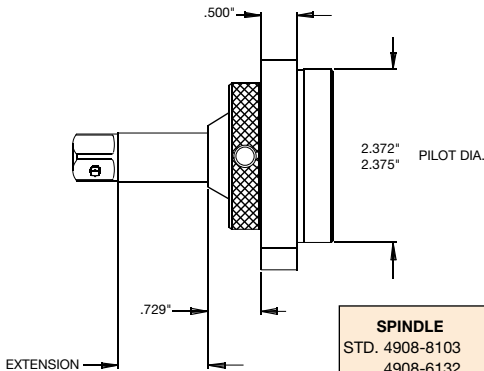
(See Group BB under "Mounting Plates" for additional mounting plate availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN F

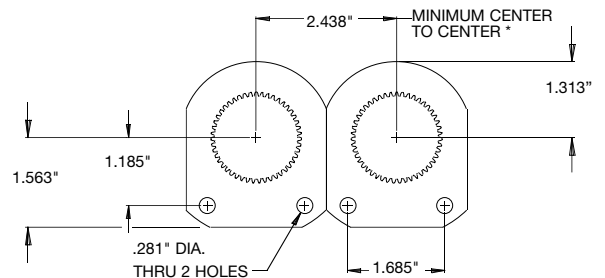
**SLIDING SPINDLE/UP TO 118 FT.LBS. (160 Nm)
PNEUMATIC 100,101 SERIES (INSTRUMENTED)/ELECTRIC
225 SERIES**



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION	
STD.	4908-8103	1/2"	3/4"	.688"	
	4908-6132	3/8"	3/4"	.688"	
	4908-6130	3/8"	4"	.688"	
Δ	4908-6140 (80 Ft-Lbs Max)	3/8"	4"	.688"	
	3566-7105	1/2"	3/4"	.688"	HEAVY DUTY DESIGN
	4804-7181	1/2"	1-1/8"	.688"	
	4908-8114	1/2"	2-3/4"	.688"	
	4908-8113	1/2"	4"	.688"	
	4908-8145	1/2"	6"	.688"	
	4908-8137	1/2"	8"	.688"	
	4908-8131	1/2"	10"	.688"	
	4804-7183	1/2"	13"	.688"	
	3566-6111	5/8"	3/4"	.688"	HEAVY DUTY DESIGN

STD. MOUNTING PLATE 4908-7108

(See Group BB under "Mounting Plates" for additional mounting plate availability.)

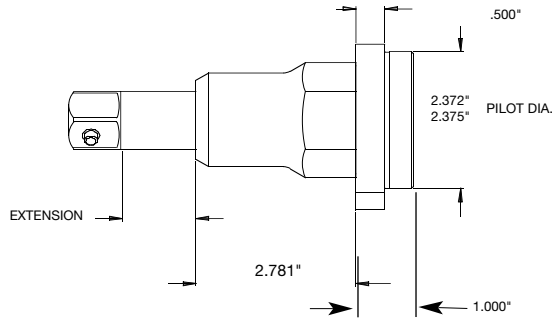


* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

Δ Spindle Diameter reduced to .375" (Special)

DESIGN G

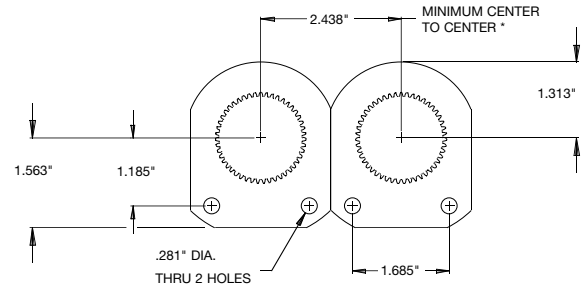
SLIDING SPINDLE/UP TO 118 FT.LBS. (160 Nm)
PNEUMATIC 100,101 SERIES (INSTRUMENTED)/ELECTRIC 225 SERIES



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4804-7153	5/8"	2-5/8"	.750"
	4804-6182	1/2"	2-5/8"	.750"
	4804-6173	5/8"	.69"	.690"
	4804-6172	3/4"	.69"	.690"
	4804-6167	3/4"	2-5/8"	.750"

STANDARD MOUNTING PLATE 4908-7108

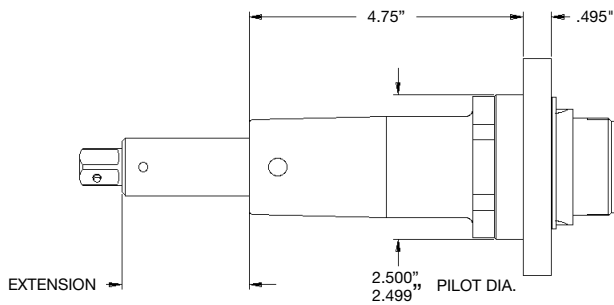
(See Group BB under "Mounting Plates" for additional mounting plate availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN H

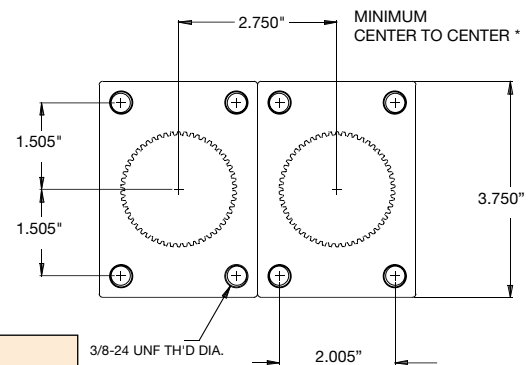
SLIDING SPINDLE/UP TO 118 FT.LBS. (160 Nm)
PNEUMATIC 100,101 SERIES (INSTRUMENTED)/ELECTRIC 225 SERIES



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4908-7126	1/2"	2.210"	2", 1 3/4" or 1 1/2" (specify)
	3584-6101	1/2"	2.210"	2"
	4908-6129	1/2-20 Threaded	2.210"	2"
	4908-6133	5/8"	2.210"	2"
	3584-6103	5/8"	2.210"	2" HEAVY DUTY DESIGN
	4908-6134	3/4"	2.210"	2"

STANDARD MOUNTING PLATE 4397-7109

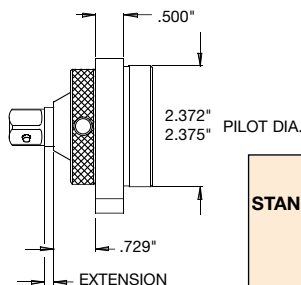
(See Group CC under "Mounting Plates" for additional mounting plate availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN J

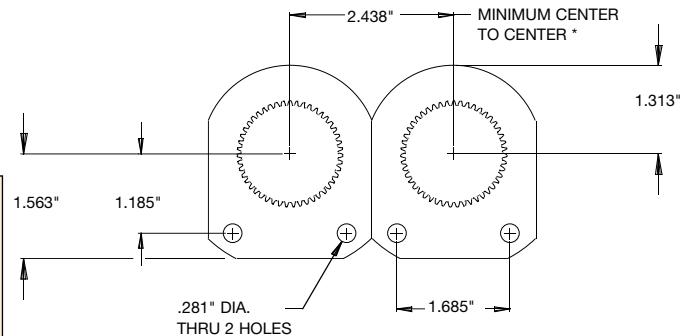
FIXED SPINDLE/UP TO 118 FT.LBS. (160 Nm)
PNEUMATIC 100, 101 SERIES (INSTRUMENTED)/ELECTRIC 225 SERIES



	SPINDLE	SQ. DRIVE	EXTENSION
STANDARD	4804-7123	1/2"	FLUSH
	4804-7121	1/2"	3/4"
	4804-7122	1/2"	4"
	4804-7184	1/2"	6"
	4804-7165	1/2"	8"
	4804-7183	1/2"	13"

STANDARD MOUNTING PLATE 4908-7108

(See Group BB under "Mounting Plates" for additional mounting plate availability.)

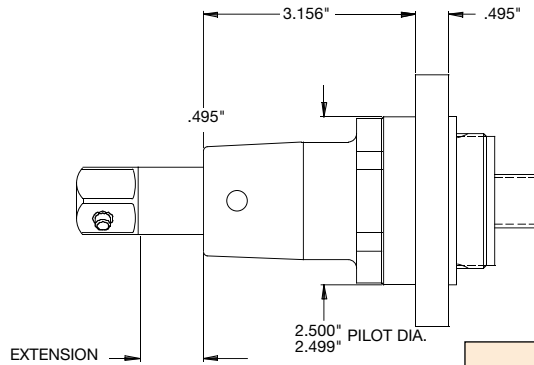


* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

Front End Designs

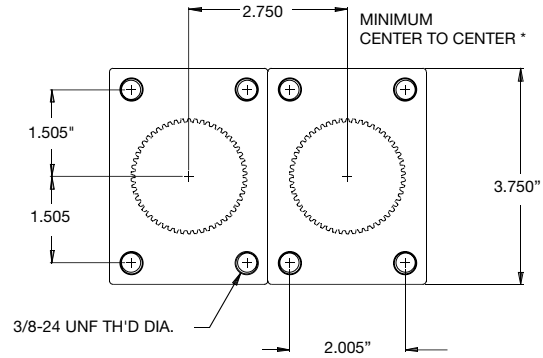
DESIGN K

SLIDING SPINDLE/UP TO 285 FT.LBS. (386 Nm)
PNEUMATIC 100, 101 SERIES/ELECTRIC 225 SERIES



STANDARD MOUNTING PLATE 4397-7109

(See Group CC under "Mounting Plates" for additional mounting plate availability.)

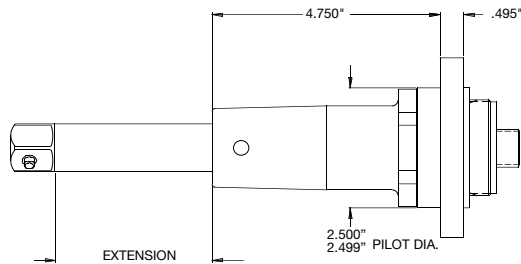


	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4907-7108	3/4"	7/8"	.750"
	4907-6120	5/8"	7/8"	.750"
	4907-6121	5/8" BALL TYPE RETAINER	7/8"	.750"
	4907-7112	3/4" BALL TYPE RETAINER	7/8"	.750"
	4907-5116	5/8"	4"	.750"
	4907-5118	3/4" THRU-HOLE	7/8"	.750"

* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

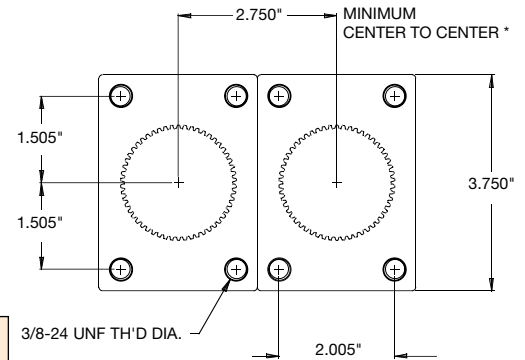
DESIGN L

SLIDING SPINDLE/UP TO 285 FT.LBS. (386 Nm)
PNEUMATIC 100, 101 SERIES/ELECTRIC 225 SERIES



STANDARD MOUNTING PLATE 4397-7109

(See Group CC under "Mounting Plates" for additional mounting plate availability.)

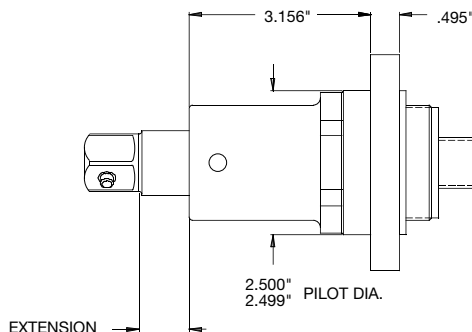


	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4397-7117	3/4"	3-1/4"	1.500"
	4397-7118	1/2" (220 FT-LBS MAX.)	3-1/4"	1.500"
	4397-6129	1/2" THRU-HOLE (220 FT-LBS MAX.)	3-1/4"	1.500"
	4397-7106	5/8"	3-1/4"	1.500"
	4397-7123	3/4" BALL TYPE RETAINER	3-1/4"	1.500"
	4397-7131	3/4" THRU-HOLE	3-1/4"	1.500"

* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

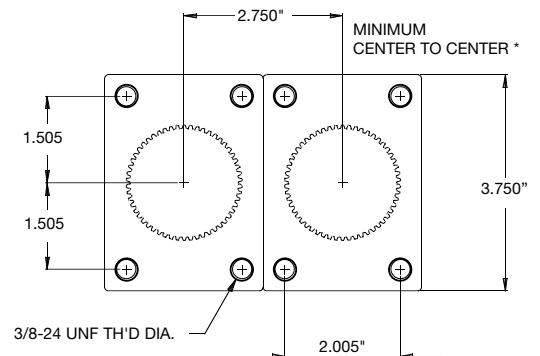
DESIGN M

SLIDING SPINDLE/UP TO 450 FT.LBS. (610 Nm)
PNEUMATIC 100, 101 SERIES/ELECTRIC 225 SERIES



STANDARD MOUNTING PLATE 4397-7109

(See Group CC under "Mounting Plates" for additional mounting plate availability.)

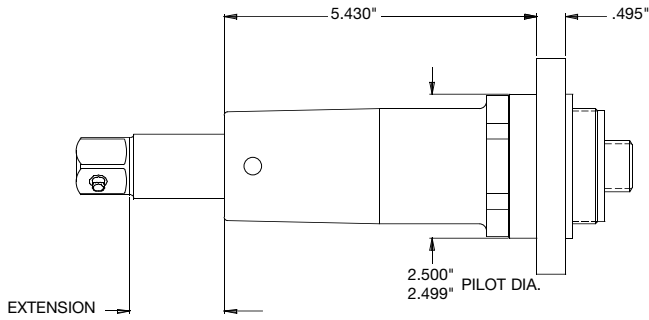


	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4965-6128	3/4"	7/8"	.750"
	4965-6129	3/4" BALL TYPE RETAINER	7/8"	.750"

* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN N

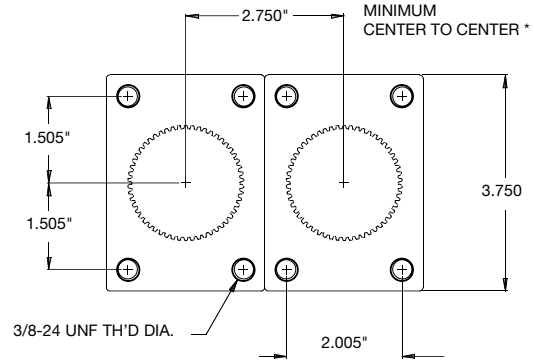
SLIDING SPINDLE/UP TO 450 FT.LBS. (610 Nm)
PNEUMATIC 100, 101 SERIES/ELECTRIC 225 SERIES



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4965-6118	3/4"	1.63"	1.500"
	4397-6132	5/8"-11 TH'D.	3.57"	1.500"
	4965-6144	3/4" (THRU HOLE)	3.57"	1.500"
	4965-6133	3/4"	3.57"	1.500"

STANDARD MOUNTING PLATE 4397-7109

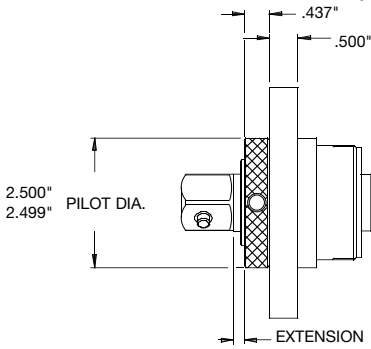
(See Group CC under "Mounting Plates" for additional mounting plate availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN P

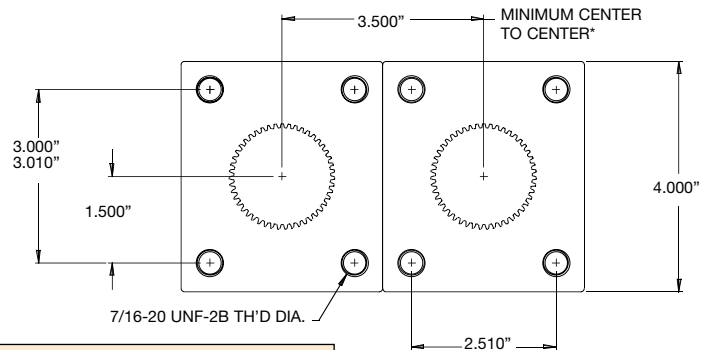
FIXED SPINDLE/UP TO 280 FT.LBS. (380 Nm)
PNEUMATIC 100, 101 SERIES (NON-INSTRUMENTED)



	SPINDLE	SQ. DRIVE	EXTENSION
STANDARD	4803-7133	3/4"	FLUSH
	4803-7163	1/2" (NO PIN) (220 FT/LBS MAX.)	FLUSH
	4803-7108	5/8"	FLUSH
	4803-7131	5/8"	4"
	4803-7134	3/4"	4"
	4803-7173	3/4" BALL TYPE RETAINER	FLUSH
	4803-7174	3/4" BALL TYPE RETAINER	4"

STANDARD MOUNTING PLATE 4459-7101

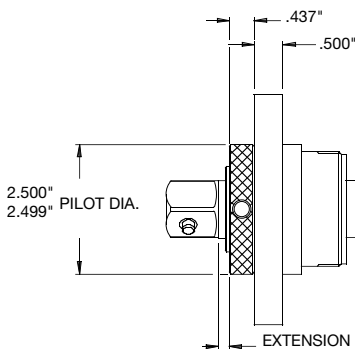
(See Group DD under "Mounting Plates" for additional mounting plate availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN Q

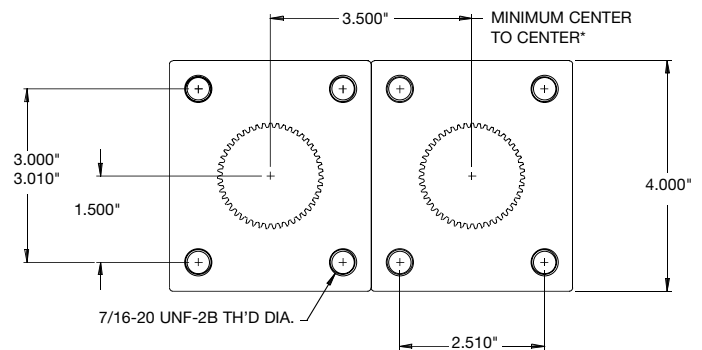
FIXED SPINDLE/UP TO 445 FT.LBS. (603 Nm)
PNEUMATIC 100, 101 SERIES (NON-INSTRUMENTED)



	SPINDLE	SQ. DRIVE	EXTENSION
STANDARD	4603-7195	3/4"	FLUSH
	4603-7196	3/4" BALL TYPE RETAINER	FLUSH
	4603-7193	3/4"	4"
	4603-7194	3/4" BALL TYPE RETAINER	4"

STANDARD MOUNTING PLATE 4459-7101

(See Group DD under "Mounting Plates" for additional mounting plate availability.)

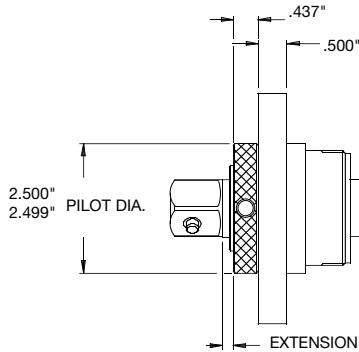


* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

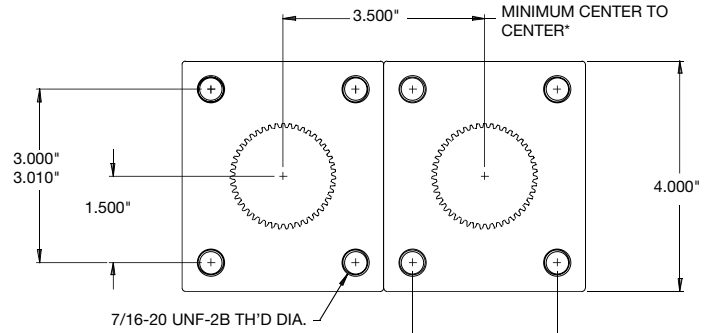
Front End Designs

DESIGN R

FIXED SPINDLE/UP TO 450 FT.LBS. (610 Nm)
PNEUMATIC 100,101 SERIES (INSTRUMENTED)/ELECTRIC 225 SERIES



STANDARD MOUNTING PLATE 4459-7101
(See Group DD under "Mounting Plates" for additional mounting plate availability.)

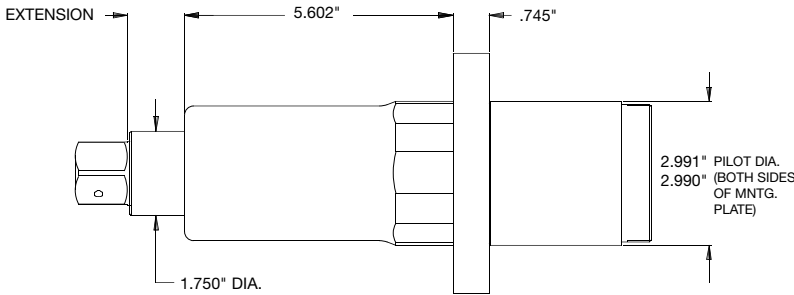


	SPINDLE	SQ. DRIVE	EXTENSION
STANDARD	4619-7105	3/4" (THRU 280 FT-LBS)	FLUSH
STANDARD	4603-7197	3/4" (ABOVE 280 FT-LBS)	FLUSH
	4619-7186	1/2" SQ. DR.	FLUSH
	4619-7136	3/4" BALL TYPE RETAINER (280 FT-LBS MAX.)	FLUSH
	4603-7198	3/4" BALL TYPE RETAINER	FLUSH

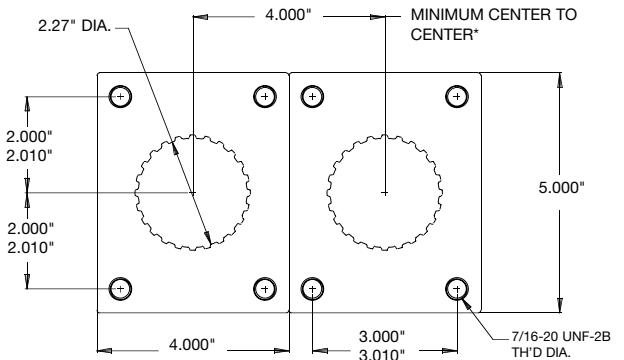
* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN S

SLIDING SPINDLE/UP TO 1520 FT.LBS. (2061 Nm)
PNEUMATIC 100,101 SERIES/ELECTRIC 225 SERIES



STANDARD MOUNTING PLATE 4948-7101
(See Group EE under "Mounting Plates" for additional mounting plate availability.)

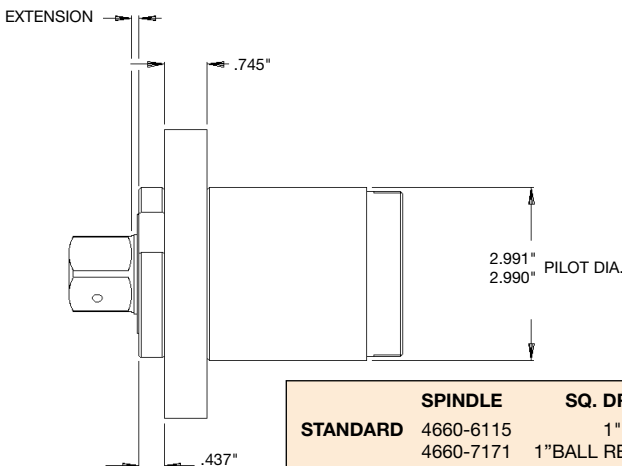


	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	4660-6129	1"	1.19"	1.000"
	4660-6164	1"	6.00"	1.000"
	4660-7169	1" Ball Ret.	1.19"	1.000"
	4660-7170	1" Ball Ret.	6.00"	1.000"

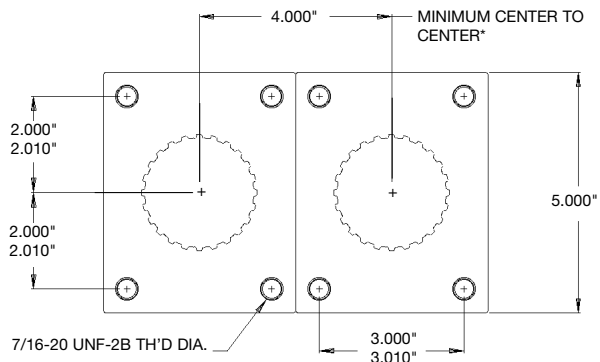
* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

DESIGN T

FIXED SPINDLE/UP TO 1520 FT.LBS. (2061 Nm)
PNEUMATIC 100,101 SERIES/ELECTRIC 225 SERIES



STANDARD MOUNTING PLATE 4948-7101
(See Group EE under "Mounting Plates" for additional mounting plate availability.)

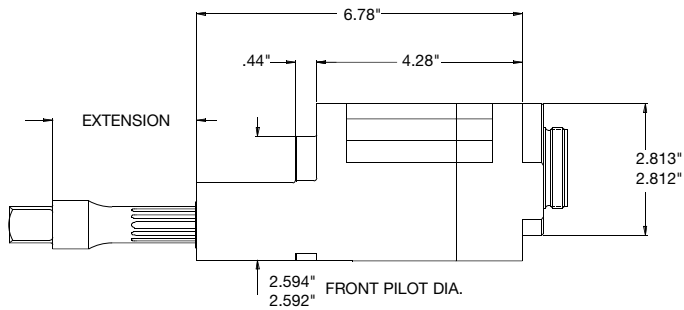


	SPINDLE	SQ. DRIVE	EXTENSION
STANDARD	4660-6115	1"	FLUSH
	4660-7171	1" BALL RETAINER	FLUSH

* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
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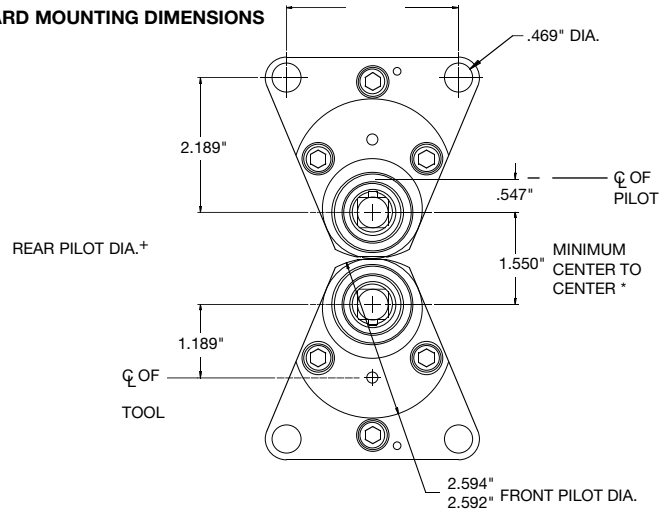
DESIGN U

SLIDING FLANGE OFFSET/UP TO 155 FT. LBS. (210 Nm)



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD (Up to 115 ft-lbs.)	3573-6117	1/2"	4"	1.0"
	3573-6119	1/2"	1-1/2"	1.0"
STANDARD (Over 120 ft-lbs.)	3573-7106	3/4"	3"	1.0"
	3573-6112	3/4"	5"	1.0"
	3573-6118	3/4"	7"	1.0"

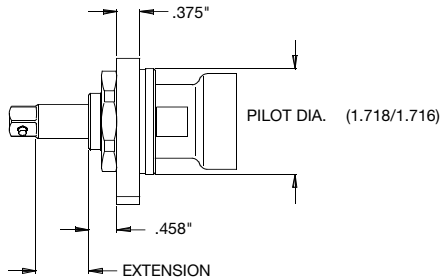
STANDARD MOUNTING DIMENSIONS



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

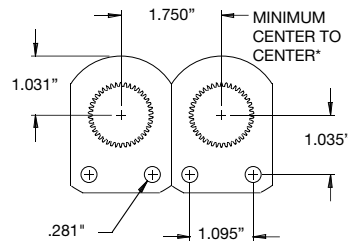
DESIGN V

SLIDING SPINDLE/UP TO 10 FT.LBS. (14 Nm)
ELECTRIC 115 SERIES



	SPINDLE	SQ. DRIVE	EXTENSION	RETRACTION
STANDARD	6600-7195	3/8"	.859"	.75"
	3115-7103	1/4"	.859"	.75"
	3115-7104	1/4" Hex QC	.859"	.75"

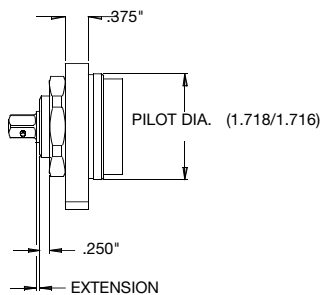
STANDARD MOUNTING PLATE 5711-7103 FOR "M" STYLE TOOLS
(See Group AA under "Reaction Mounting Plates/Bars" for additional mounting plate and reaction bar availability.)



* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

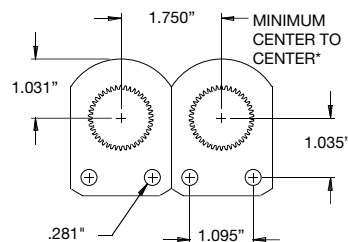
DESIGN W

FIXED SPINDLE/UP TO 10 FT.LBS. (14 Nm)
ELECTRIC 115 SERIES



	SPINDLE	SQ. DRIVE	EXTENSION
STANDARD	3110-7110	3/8"	Flush (.06")
	3110-7109	1/4"	Flush (.00")
	3110-7136	1/4" Hex QC	Flush (.06")

STANDARD MOUNTING PLATE 3111-7106 FOR "M" STYLE TOOLS
(See Group AA under "Reaction Mounting Plates/Bars" for additional mounting plate and reaction bar availability.)



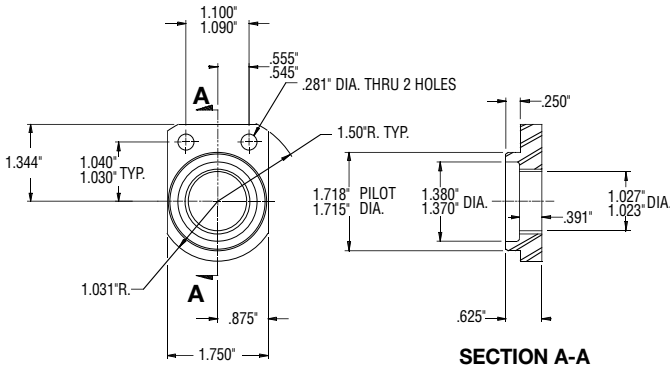
* When mounted, ACTUAL center to center cannot be less than largest tool diameter.
NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

Mounting Plates

Group AA: Pneumatic 52, 54 Series/Electric 115, 130, 150 Series up to 35 Ft.Lbs.

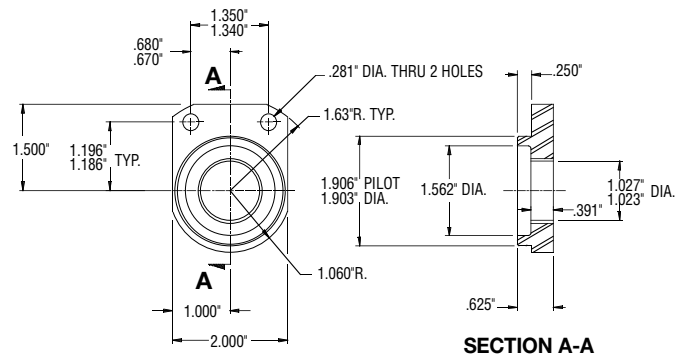
1. 5711-7103

Standard for non-instrumented "M" style air tools.



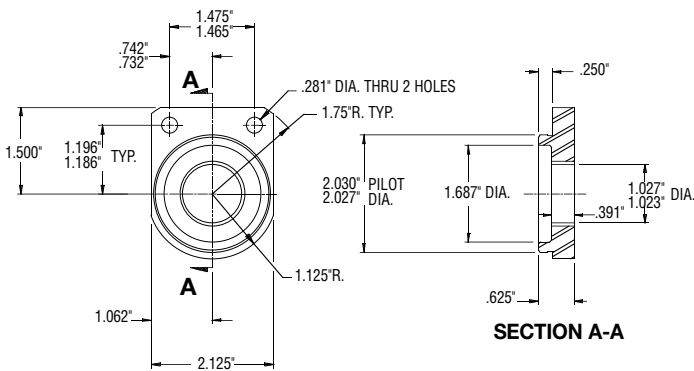
2. 5721-7101

Standard for instrumented "M" style air tools.



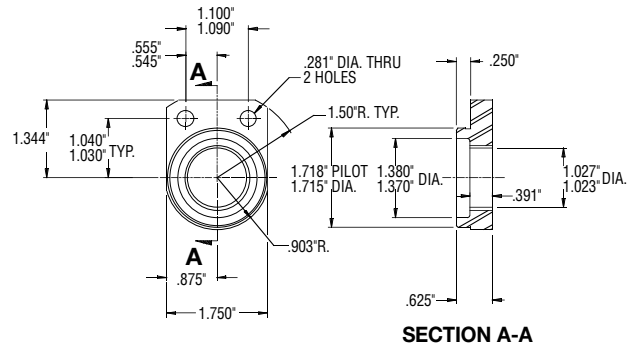
3. 3251-7102

Standard for brushless DC "M" style tools.



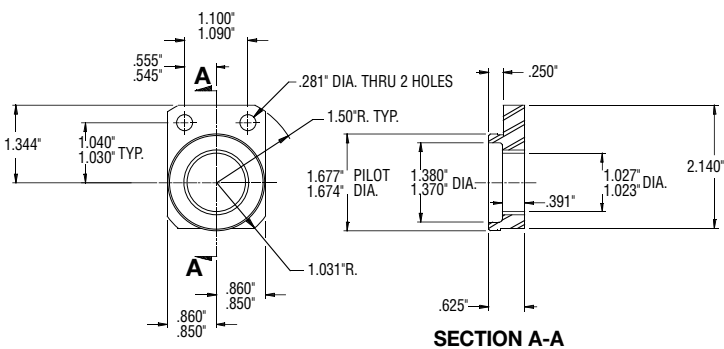
4. 7603-7120

Standard for instrumented "M" style air tools.



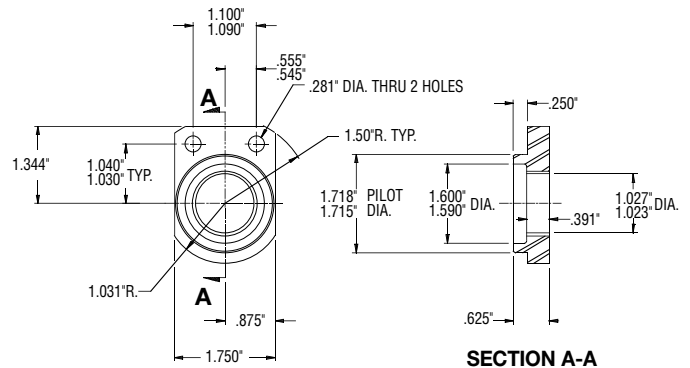
5. 7604-7119

Standard for instrumented "M" style air tools.



6. 3111-7106

Standard for non-instrumented "M" style air tools.

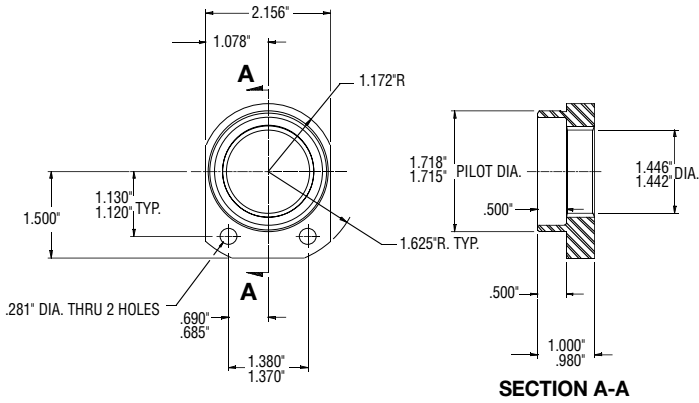


NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

Group BB: Pneumatic 100, 101 Series/Electric 225 Series up to 118 Ft. Lbs.

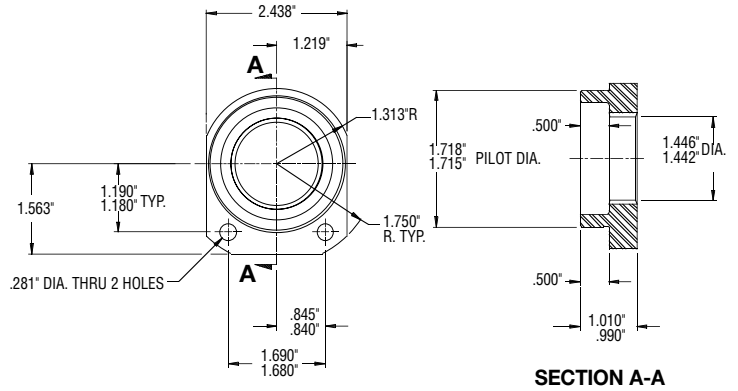
1. 4902-7109

Standard for non-instrumented "M" style air tools.

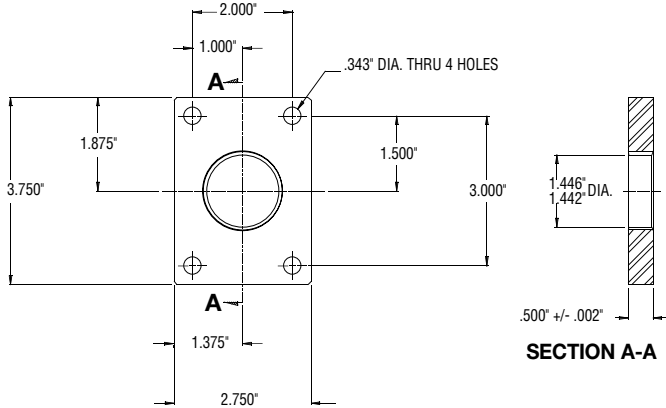


2. 4908-7108

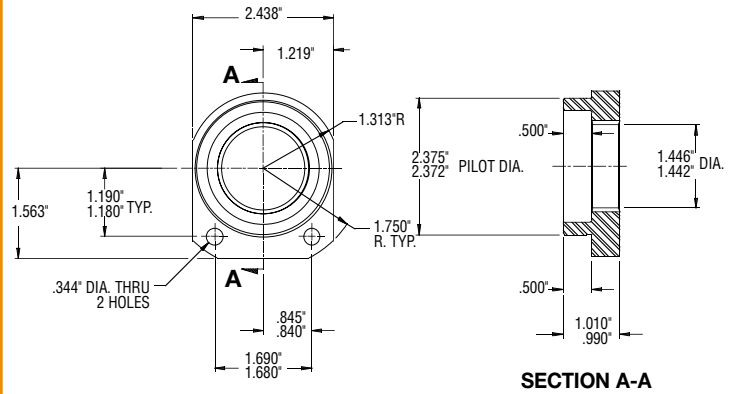
Standard for instrumented "M" style air and brushless DC electric tools.



3. 4902-7120



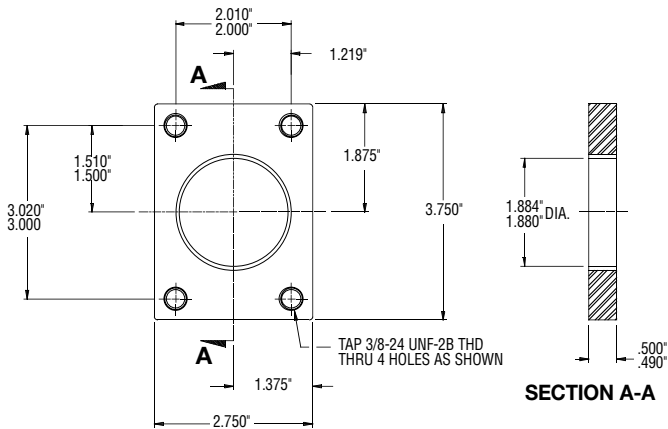
4. 7805-9121



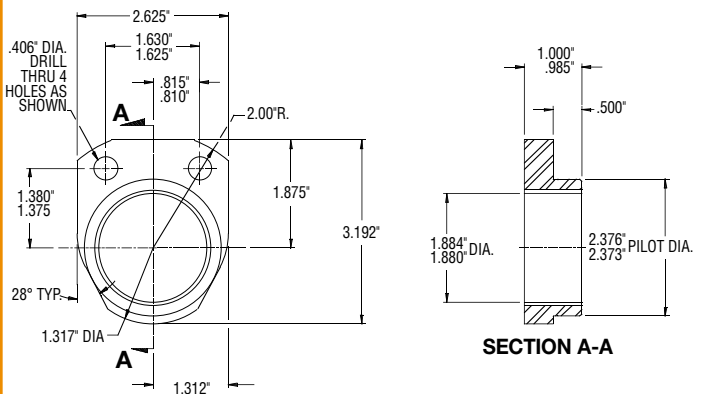
Group CC: Pneumatic 100, 101 Series/Electric 225 Series Sliding Spindles/up to 450 Ft. Lbs.

1. 4397-7109

Standard for "M" style air or brushless DC electric tools.



2. 3566-6101

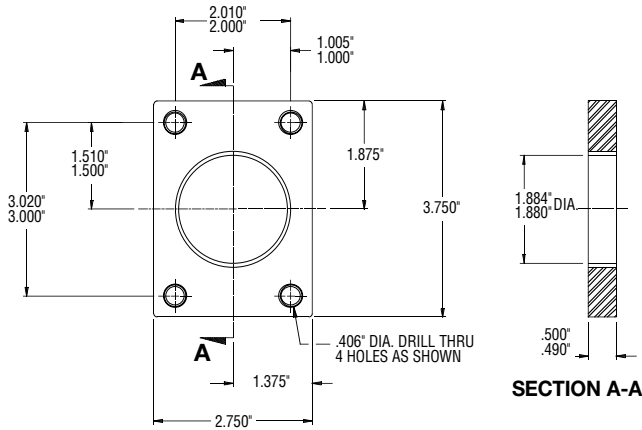


NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

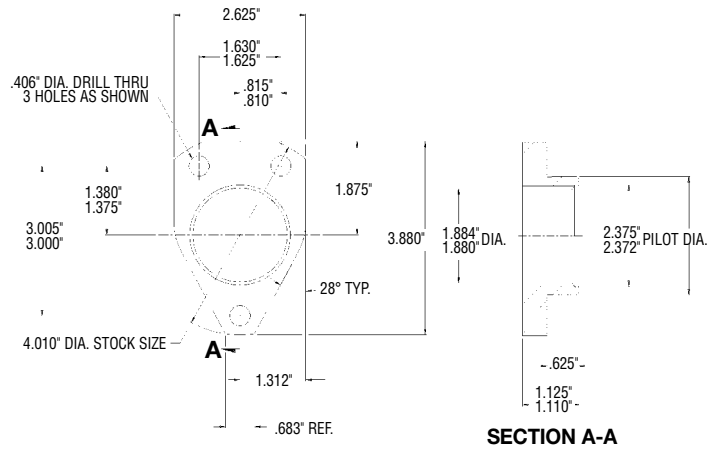
Mounting Plates

Group CC: Pneumatic 100, 101 Series/Electric 225 Series Sliding Spindles/up to 450 Ft. Lbs.

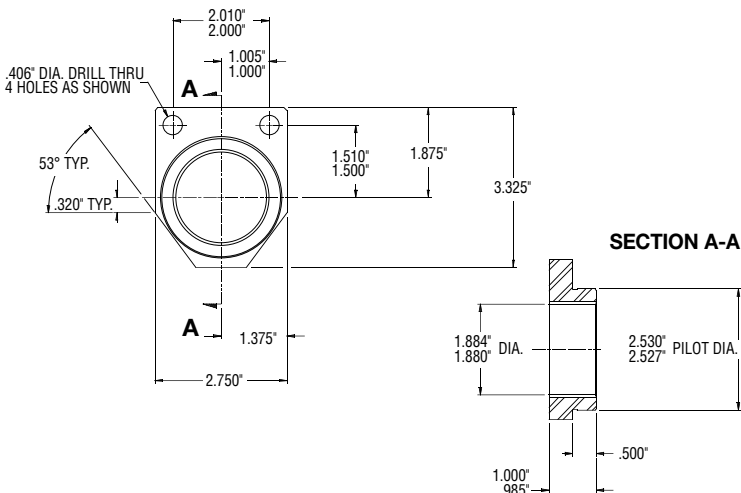
3. 3563-7102



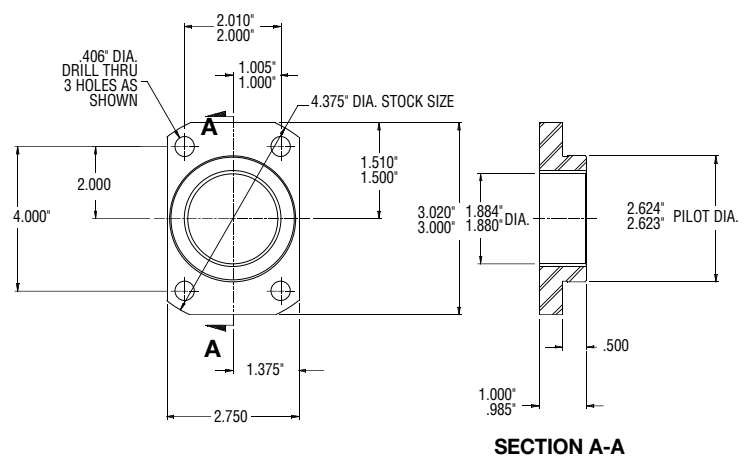
4. 3564-6101



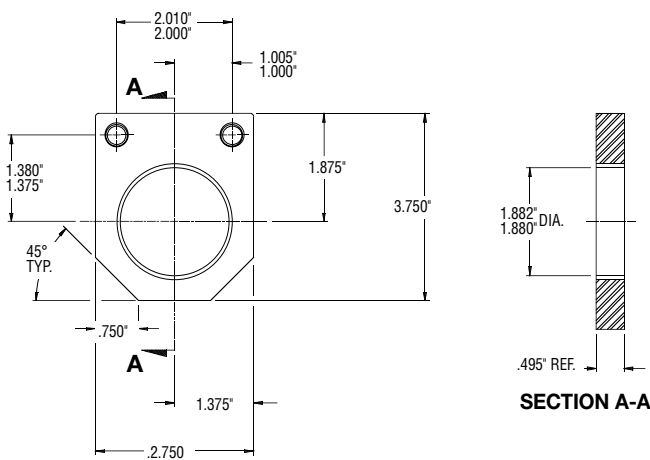
5. 7205-6106



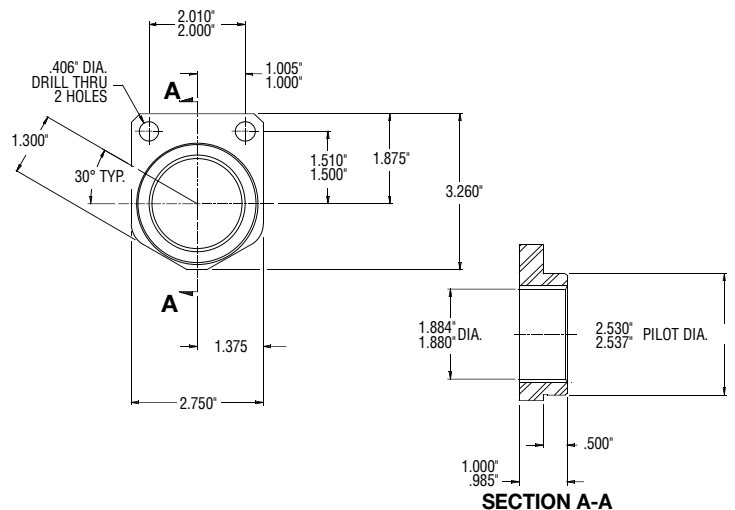
6. 4397-6126



7. 4397-7127



8. 7203-6115

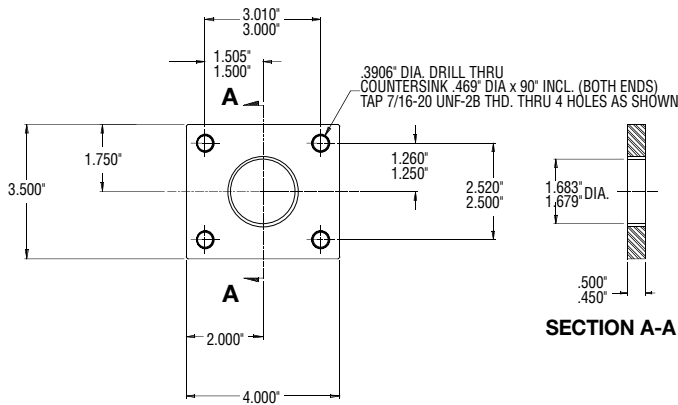


NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

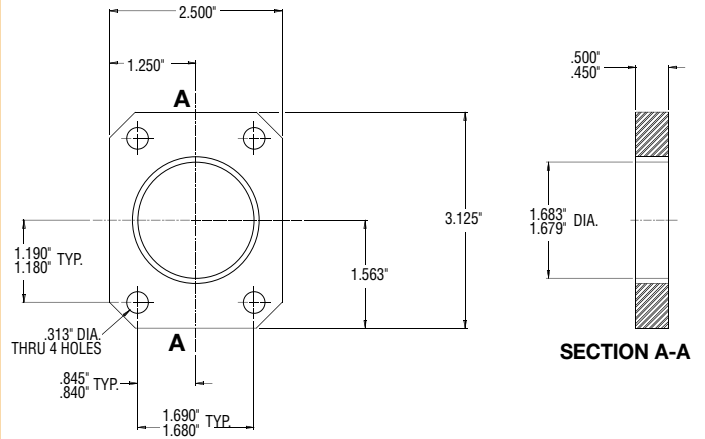
Group DD: Pneumatic 100, 101 Series/Electric 225 Series Fixed Spindles/up to 450 Ft. Lbs.

1. 4459-7101

Standard for "M" style air or brushless DC electric tools.



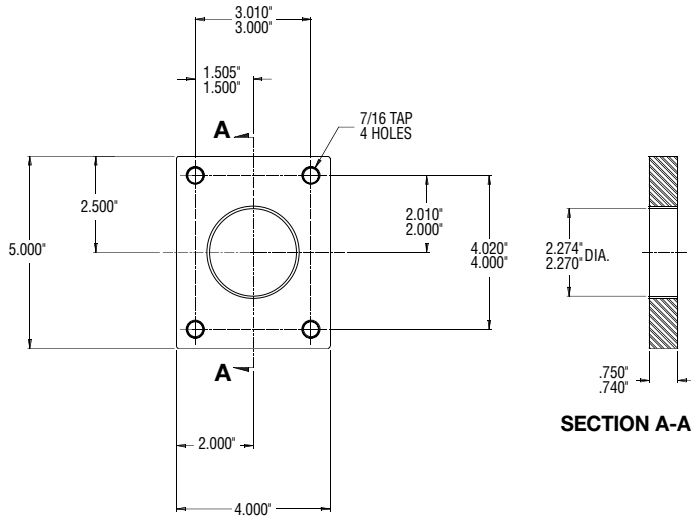
2. 4803-7136



Group EE: Pneumatic 100, 101 Series/Electric 225 Series Up to 1520 Ft. Lbs.

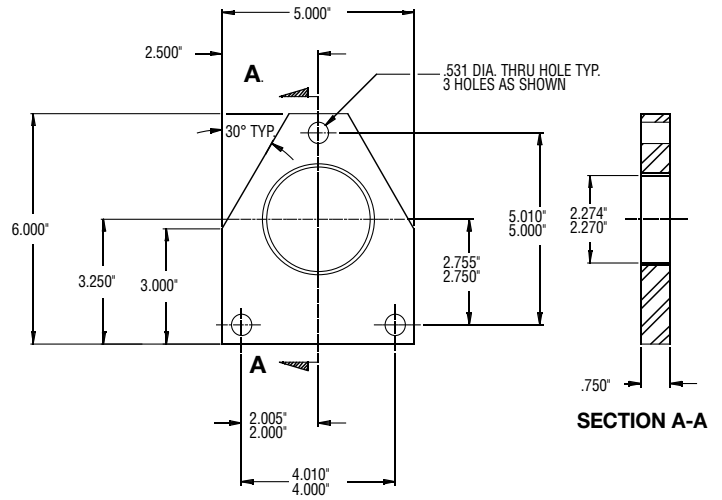
1. 4948-7101

Standard for "M" style air or brushless DC electric tools.



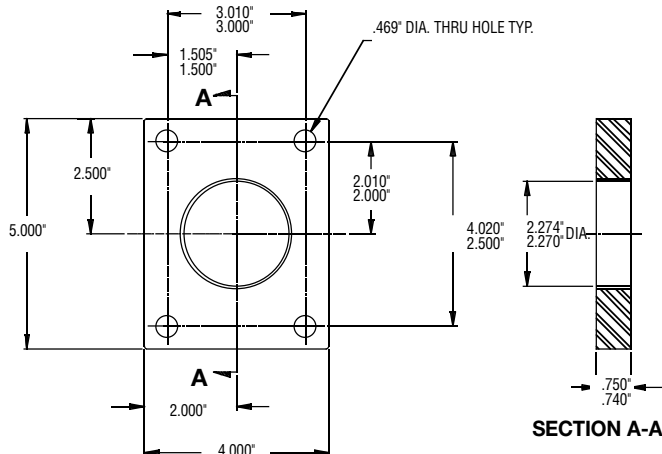
2. 4948-6102

Optional



3. 4948-7103

Optional



NOTE: The technical data and dimensions contained within this catalog are subject to change without notice. Please verify all critical parameters with Customer Service.

Electronic Controllers

The simple solution for critical fastening applications

ROTOR TOOL®

The Rotor Tool family of electronic controllers is the easiest to use in the world. Yet the primary function – torque control – is surpassed by none.

The Rotor Tool controllers do not offer fancy features you will not use but does offer torque control you can rely on for years. For these reasons, we call our system “the simple solution”.

The Science of Fastening

With the many variables involved when joining two structures together with a fastener and a power tool, accurately repeating the process can be a difficult task. For critical fastening applications, a wide variety of Rotor Tool electronic controllers are offered that can consistently measure the fastening process, record the data, shut off when the desired values are reached, and repeat the process time and again.

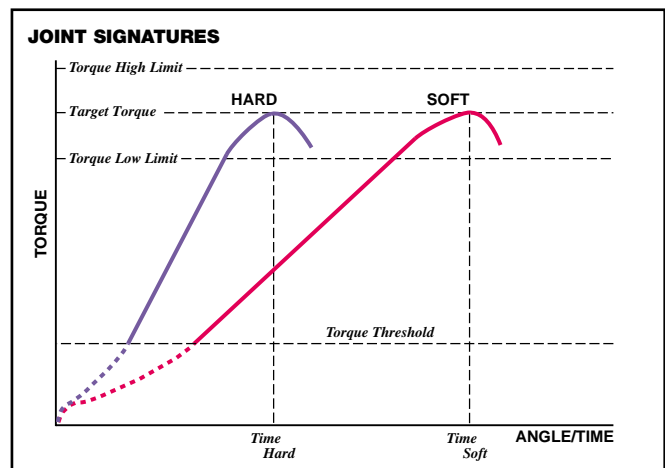
The accompanying graphs illustrate the values plotted on the X and Y coordinates and represent the curves from various tightening techniques or “fastening strategies”.



Understanding Joints

Joints are usually categorized as being either hard or soft. But, as you are aware, it is rarely that simple. The graph at the right illustrates the difference between the two. Typically the actual application will be somewhere in between.

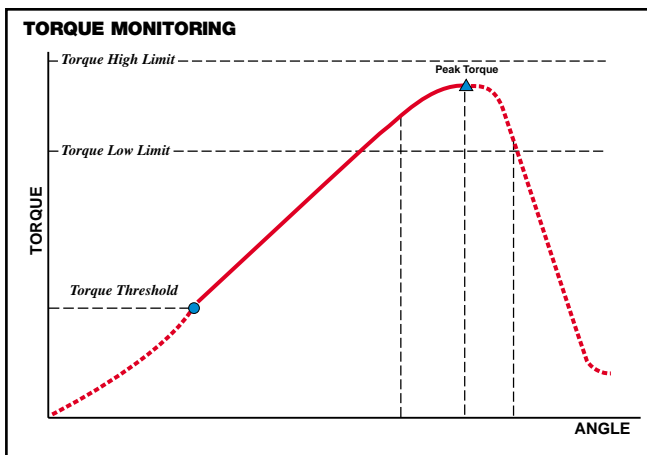
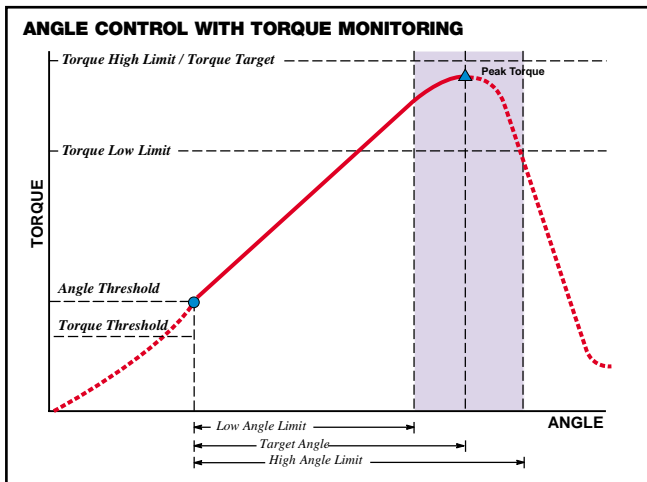
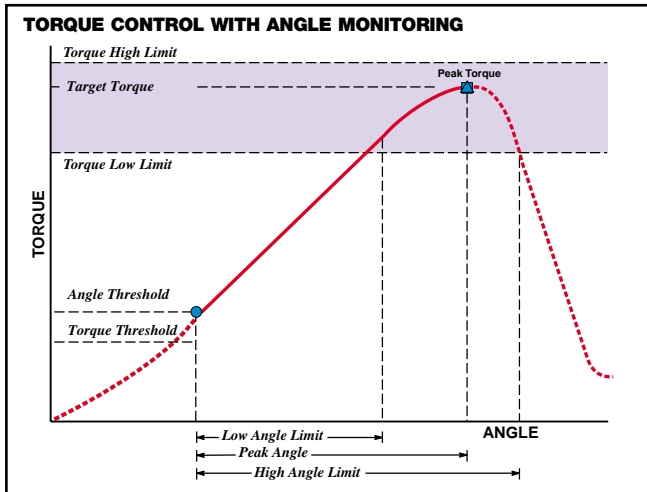
To read the graphs, begin at the lower left hand corner where the graph begins. You will note that the first part of the graph is a dotted line (*the line was changed because the measurement and monitoring cycles begin at torque threshold for all strategies.*) As you continue upward on the graph, notice that the graph intersects horizontal lines that are marked with different control parameters (vertical lines have also been used in the actual graphs).



These control parameters represent the values that will be programmed into the controllers.

Fastening Strategies

A fastening strategy is a term used to describe the method of control required to obtain the proper clamp load on a particular joint. Below is a summary, with accompanying graphs, of the most common fastening strategies that can be easily accomplished with the Rotor Tool electronic controllers. Shaded areas within the graphs represent the values which control when and at what value the tool will shut off.



■ **Torque Control with Angle Monitoring**

The Rotor Tool Electronic Controllers will control the applied peak torque by shutting off when the specified value for target torque is reached. The cycle is initiated when the cycle start switch is closed or when torque threshold is detected. The cycle is terminated when the “Target Torque” is reached or if the cycle start switch is opened. The patented “Learn” feature will automatically adjust the internal shut-off point so that peak torque closely matches target torque. Angle measurements are initiated when the “Angle Threshold” value is reached. The evaluation can be based upon whether or not the peak torque and the angle measurements are within the specified limits.

■ **Angle Control with Torque Monitoring**

The Rotor Tool Electronic Controllers will control the angle of fastener rotation from the specified “Angle Threshold” to a specified “Target Angle”. The cycle is initiated when the cycle start switch is closed or when threshold torque is detected. The cycle is terminated when the “Target Angle” is reached or if the cycle start switch is opened. The patented “Learn” feature will automatically adjust the internal shut-off point so that peak angle closely matches target angle. Evaluation can be based upon the final angle of fastener rotation and the peak torque within the specified limits. “Torque Target” is typically set high as a safety back-up precaution.



■ **Torque Monitoring**

The sequence is used with a transducerized nutrunner. In this strategy the cycle is initiated when the torque threshold is detected. Peak applied torque is monitored during the fastening cycle and is displayed after the cycle is complete.

Electronic Controllers

Electric Tool Controllers



- Stand-alone, wall mount, or open chassis mount for incorporating multiple units in a common cabinet
- Bi-directional control of torque, angle and speed
- Suitable for use on single phase, 50 or 60 Hz, 115 or 230 volt systems



Model Number	I/O	Voltage	# of Strategies	Dimensions		Weight		Ordering Number
				in	mm	lb	kg	
WALL MOUNT								
RTEC	No	115 or 230	8	16" x 9" x 11"	400 x 220 x 290	26	12	80035024
RTECIO	Yes	115 or 230	64	16" x 9" x 11"	400 x 220 x 290	26	12	80035025
WALL MOUNTED FOR EUROPEAN COMMUNITY								
RTECCE	No	115 or 230	8	16" x 9" x 11"	400 x 220 x 290	26	12	80035026
RTECCEIO	Yes	115 or 230	64	16" x 9" x 11"	400 x 220 x 290	26	12	80035027
OPEN (CHASSIS) STYLE FOR CABINET MOUNTING								
RTECCM	No	115 or 230	8	15" x 7" x 9"	390 x 170 x 240	14	6	80035028
RTECCMIO	Yes	115 or 230	64	15" x 7" x 9"	390 x 170 x 240	14	6	80035029

STANDARD EQUIPMENT

Menu-driven two line LCD display for simplified set-up programming
 Two-way RS232C serial communication allows remote programming and data collection
 Parallel port allows manual or automatic rundown reports and/or SPC summary printouts
 Flexible two-speed function features programmable speeds and shift-points for maximizing control and maintaining line speed
 Torque/angle status indicated on front panel

OPTIONAL EQUIPMENT

I/O Package for remote functions
 Start (Configurable for momentary or maintained)
 Stop
 Forward/Reverse
 Strategy Select (Configurable to 4, 8, 16, 32 or 64 select)
 Status indicators (High, Low, OK, cycle complete)
 Lockout to disable tool
 Select switch or socket tray at assembly station allows the operator to remotely select torque/angle tightening strategies

Tool Cables

Connects electric tool to controller or extension cable.

Feet	Straight Connector at Controller		Right Angle Connector at Controller	
	Straight Tool Connector	Right Angle Tool Connector	Straight Tool Connector	Right Angle Tool Connector

EM150/EM225 Series Cables

1.5	70170128	—	—	—
5	—	770170159	—	—
10	77017063	77017032	770170102	77017097
25	77017062	77017031	770170103	77017098
50	77017061	77017030	770170104	77017099
75	77017060	77017029	770170105	77017100
100	77017064	77017057	770170106	77017101

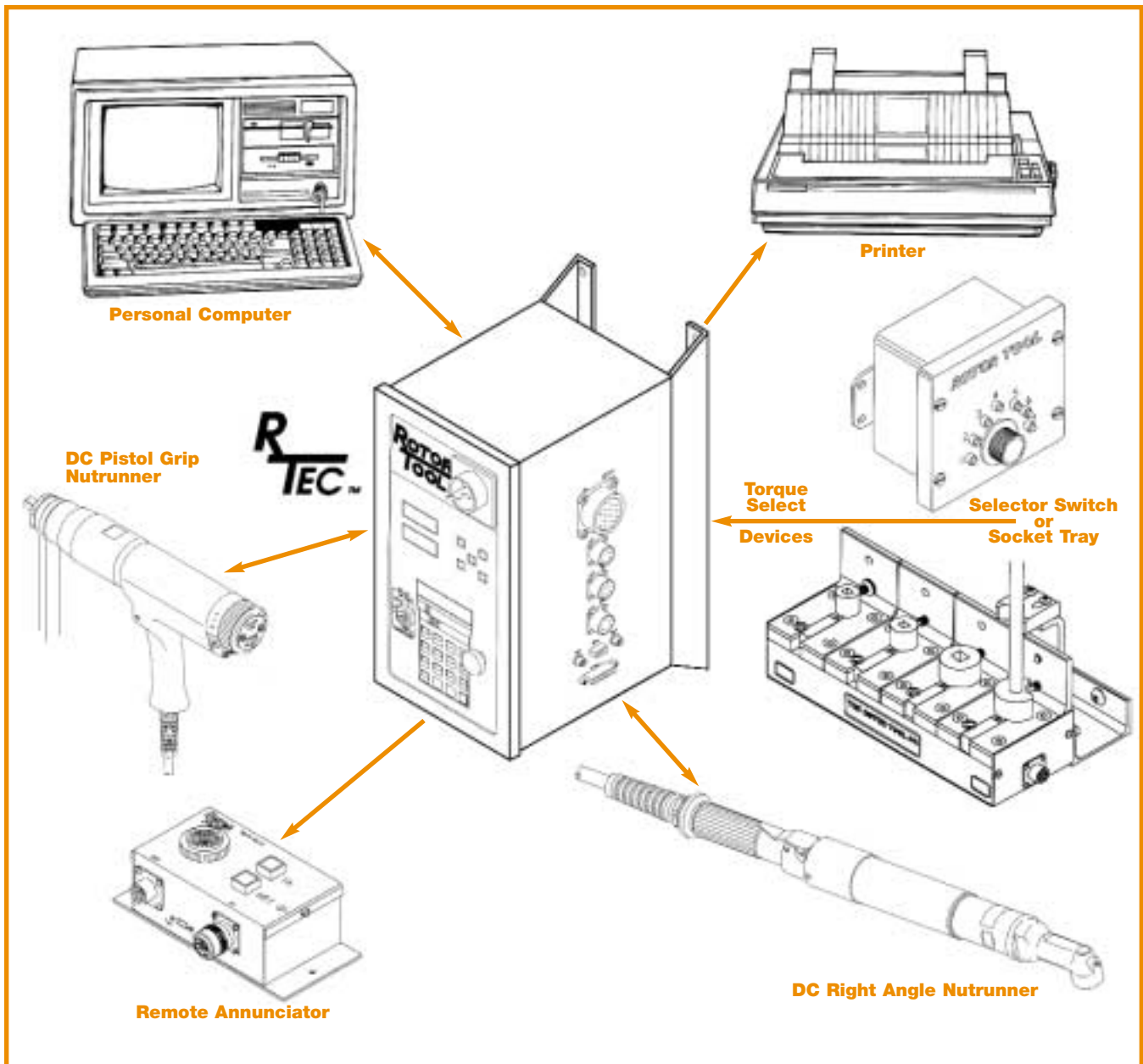
ES 115 and EM 115 Series Cables

6'	31106028	25'	31106031
10'	31106029	35'	31106032
15'	31106030	50'	31106033

Extension Cables

Connects tool cables to controller. Connector at tool end always straight.

Feet	Straight Connector at Controller	Right Angle Connector at Controller
10	77017075	77017092
15	770170153	—
25	77017028	77017093
50	77017027	77017094
75	77017026	77017095
100	77017059	77017096
125	770170127	—
175	770170151	—
200	770170152	—



Electronic Controllers

Pneumatic Tool Controllers



- Stand-alone construction
- All units capable of torque monitoring
- TDC2C units also capable of torque control
- TAC1 units also capable of torque control and angle control (or monitoring)
- Controllers configurable for multiple strategies



Model Number	# of Tools	Voltage	# of Strategies	Dimensions		Weight		Ordering Number
				in	mm	lb	kg	
TORQUE MONITORS								
TDC2-115	1 or 2	115	1	10" x 10" x 5"	260 x 260 x 130	11.25	5.1	99175023
TDC2-230	1 or 2	230	1	10" x 10" x 5"	261 x 260 x 130	11.25	5.1	99175024
TORQUE CONTROLLERS FOR HAND-HELD TOOLS								
TDC2C-4-115	1 or 2	115	4	10" x 10" x 8"	260 x 260 x 200	19.75	9.0	991750109
TDC2C-4-230	1 or 2	230	4	10" x 10" x 8"	260 x 260 x 200	19.75	9.0	991750110
TDC2C-7-115	1 or 2	115	7	10" x 10" x 8"	260 x 260 x 200	19.75	9.0	991750111
TDC2C-7-230	1 or 2	230	7	10" x 10" x 8"	260 x 260 x 200	19.75	9.0	991750112
TORQUE CONTROLLERS FOR FIXTURED TOOLS								
TDC2MC-F-115	1 or 2	115	2	10" x 10" x 8"	260 x 260 x 200	19.75	9.0	991750309
TDC2MC-F-230	1 or 2	230	2	10" x 10" x 8"	260 x 260 x 200	19.75	9.0	991750310
TORQUE/ANGLE CONTROLLERS FOR HAND-HELD TOOLS								
TAC1A-4-115	1	115	4	10" x 10" x 5"	260 x 260 x 130	9.00	4.1	99275011
TAC1A-4-230	1	230	4	10" x 10" x 5"	260 x 260 x 130	9.00	4.1	99275012
TAC1A-7-115	1	115	7	10" x 10" x 5"	260 x 260 x 130	9.00	4.1	99275013
TAC1A-7-230	1	230	7	10" x 10" x 5"	260 x 260 x 130	9.00	4.1	99275014

STANDARD EQUIPMENT

RS-232C serial output for communication to peripherals
 Indicates fastener status on front panel and to Jedlight equipped tools
 Locking function switch to prevent unauthorized tapering
 Controller display the following statistics and output them to a printer:
 % of fasteners in specification
 % of fasteners over hi-spec
 % of fasteners under low-spec
 Mean
 Highest recorded

OPTIONAL EQUIPMENT

Lowest recorded
 Range between the highest and lowest recorded
 6 Sigma
 Capability ratio (6 Sigma as a percentage of spec range)
 Individual data points in memory per channel

Select switch or socket tray at the assembly station allows the operator to remotely select different strategies (controllers only)

Electronic Controllers

Pneumatic Accessories

19 pin to 19 pin tool Cables

Connects any electronically controlled pneumatic tool to controller.

Cable Length	Model Number
3'	99177604
4'	72037010
10'	99177610
15'	99177615
25'	99177625
40'	99177640
50'	99177650
65'	99177665
75'	99177675
100'	991776100
125'	991776125
150'	991776150
200'	991776200

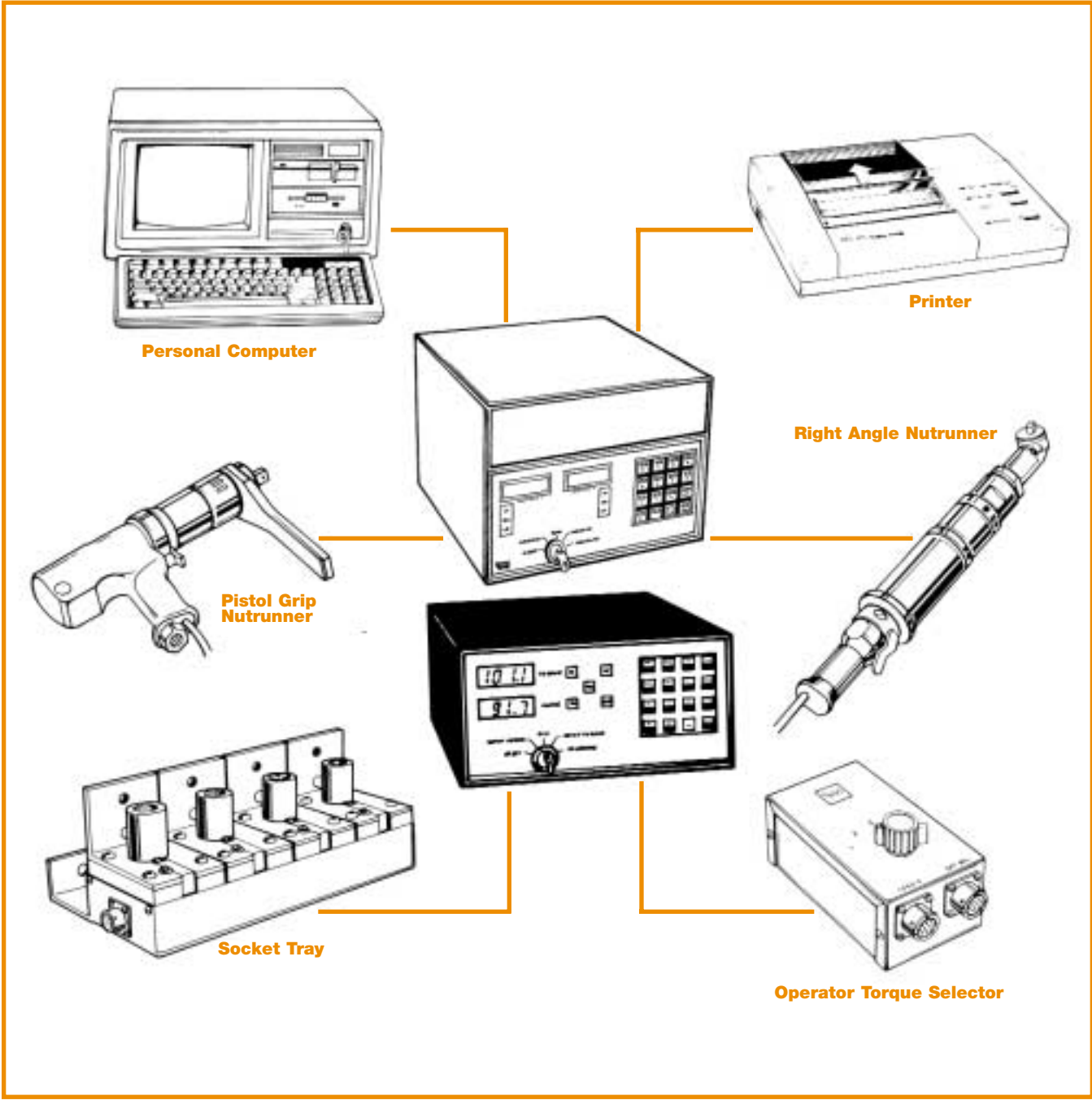
19 pin to 6 pin tool Cables

Connects any instrumented, non-electronically controlled pneumatic tool to controller.

Cable Length	Model Number
15'	99177215
25'	99177225
50'	99177250
75'	99177275

Interlock Cable 770170163

Special interlock cable to link TDC2MC controllers together for multiples greater than 2 spindles.



Electronic Controllers

Accessories

Diagnostic Equipment

H "O" MER 43526045

- Use to check zero offset, full scale and continuity of transducer wiring.
- Self-contained, fully portable. For use in tool crib or on assembly line.
- Connects to tool cable via 19 pin Bendix or directly to transducer lead through 4 pin cambion.
- The perfect aid when zeroing Trim "O" Trans transducers.
- Powered by three 9V batteries

STANDARD EQUIPMENT

6 to 19 pin Tool Cable Adapter: 4332-8038
Carrying Case: 4352-9145



Electric Tool Breakout Box 99287012

- Provides convenient access to transducer, encoder, commutation, thermal, start, reverse, and JEDLight signals.
- An invaluable tool when troubleshooting all Hall Rotor electric assembly tools



Encoder Analyzer 43526046

- Use to check for missing encoder signals, phase relationship (lead/lag) and short circuits to tool body.
- Fully portable.
- Connects to tool cable via 19 pin Bendix or directly to encoder lead through 4 pin cambion.
- Very handy when troubleshooting a tool which refuses to calibrate on angle.
- Can be used with both Hall effect and magnetic style encoders
- Powered by 9V battery (included)
- Operating instructions 1-8901

Simuliter 43567014

- Use to test JEDLight function in tool crib or on assembly line
- Fully portable.
- Connects to tool cable via 19 pin Bendix
- Can be used with both positive and negative common JEDLights
- Powered by three 9V battery (included)
- Repair parts list: PC-43561



I/O Cables

- 10 pin to 10 pin connects controller to I/O devices.
- 10 pin to bare leads connects controller to customer I/O devices.

Cable Length	Model Number
--------------	--------------

10 pin to 10 pin

3'	99178032
6'	99178042
25'	99178014
50'	99178016
75'	99178017
100'	99178027
150'	99178028
200'	991780112

10 pin to bare lead

5'	99177084
10'	99177036
25'	99177085
50'	99177086
75'	99177087
100'	99177080

I/O Devices

Torque Selector Switches

Torque Selector	Model Number
8 Select	991760103
16 Select	991760104
32 Select	991760105
64 Select	991760106



Printers

Includes AC adapters, 6' cable and paper

Description	Model Number
For RTEC	991770171
For TAC1	991770170
For TDC2C	991770170
For TDC2	991770170

Socket Trays

Four Position	
Auto	99245030
Truck	99245033

Notes: 1. Specify socket sizes.
2. Trays can be combined for more positions.
3. Up to 11/2" OD



Annunciators

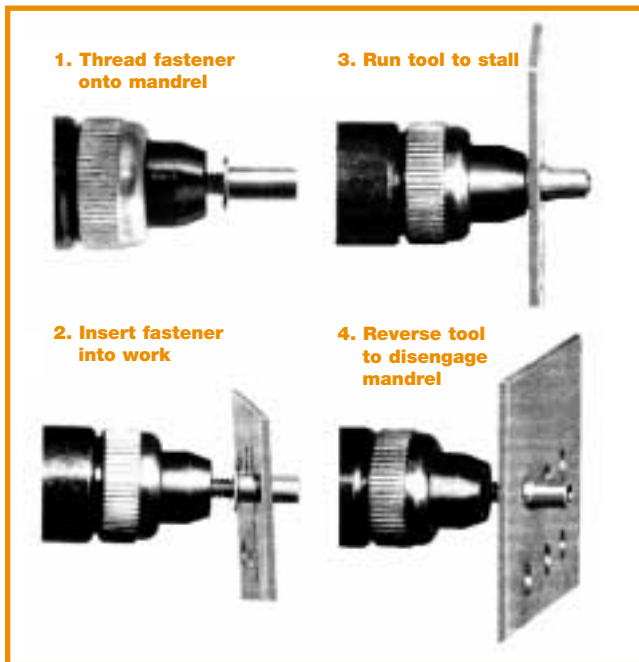
Description	Model Number
For RTEC	99176099
For TAC1	991760100
For TDC2C	991760100





Hog Ringers

The Hog Ringer fits fabric tightly to the frame of a car seat, camouflage material to its netting, fastens wire mesh for cages, and performs a variety of other jobs, by securely tightening a ring to a frame. A self-feeding magazine holds different ring sizes and easy trigger control makes it fast and simple to use.



FAS-SERT

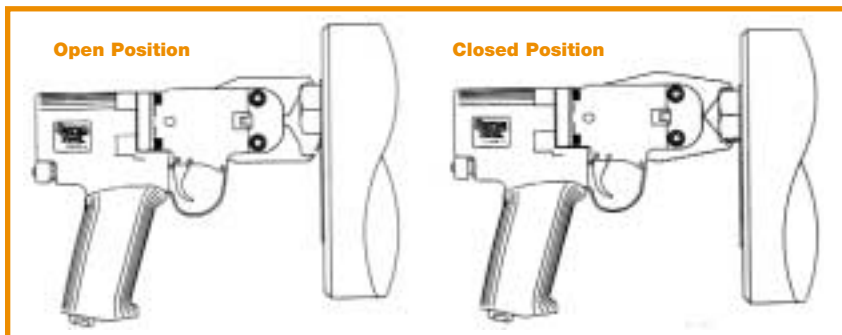
Collapsible fasteners are widely used in the aircraft, appliance, electronic, automotive, RV and marine industries. Rotor's line of FAS-SERT tools can be used with most types of collapsible fasteners. Some manufacturers lubricate fastener threads to reduce friction during installation. For best results, lubricate tool mandrel when installing unlubricated fasteners.

To Select the Proper Tool

Collapse fastener with hand torque wrench to determine proper installation torque. Order tool with a higher rated torque. Adjust tool output to desired torque by a pressure regulation.

Tab Benders

The Tab Bender for railcar and locomotive axle bearing locking plates ensures that tightened bolts stay tight. A single trigger pull closes the jaws and bends the tab, eliminating the need for pliers or chisel-type tools. Quiet, balanced, oil-less operation increases operator comfort.



Specialty Tools

Hog Ringers

ROTOR TOOL®

- Used for automotive seat construction, upholstering furniture, fastening camouflage to netting, assembling wire cages, etc.
- Forms round, tight rings
- Available for glued stick or loose staples

DOBCO

EQUIPMENT LTD



Model Number	Min Ring I/D		Wire Dim		Staple Capacity	Height		Length		Weight		Ordering Number
	in	mm	in	mm		in	mm	in	mm	lb	kg	
STANDARD (HEAVY DUTY)												
WC4	0.313	8.0	0.072	1.8	110	7.37	187	13.12	333	4.4	2.0	01025002
WC4C	0.188	4.8	0.072	1.8	110	7.37	187	13.12	333	4.4	2.0	01045002
WC43	0.188	4.8	0.062	1.6	130	7.37	187	13.12	333	4.4	2.0	01055004
WC3•	0.313	8.0	0.072	1.8	100	7.37	187	13.12	333	4.3	1.9	01015002
LIGHT WEIGHT												
HR4	0.313	8.8	0.072	1.8	110	7.37	187	13.12	333	3.6	1.6	01125002
HR4C	0.188	4.8	0.072	1.8	110	7.37	187	13.12	333	3.6	1.6	01155002
HR3C	0.313	8.0	0.072	1.8	100	7.37	187	13.12	333	3.6	1.6	01175002
LIGHT WEIGHT WITH HEAVY DUTY MAGAZINE												
WHR4	0.313	8.0	0.072	1.8	110	7.37	187	13.1	333	4.1	1.8	01195001
WHR4C	0.188	4.8	0.072	1.8	110	7.37	187	13.1	333	4.1	1.8	01205001
WHR43	0.188	4.8	0.062	1.6	130	7.37	187	13.1	333	4.1	1.8	01185001
EXTENDED JAWS												
HR4X	0.313	8.0	0.072	1.8	110	7.37	187	13.67	347	4.0	1.81	01215001
WHR4X	0.313	8.0	0.072	1.8	110	7.37	187	13.67	347	4.0	1.81	01235001
WC3X•	0.313	8.0	0.072	1.8	100	7.37	187	13.67	347	4.0	1.82	01245001
ANGLED JAWS												
WCA3	0.313	8.0	0.072	1.8	100	7.38	187	13.25	337	4.12	1.9	01035002
SMALL I.D. RINGS												
WC-60	0.125	3.2	0.062	1.6	100	7.37	187	10.63	270	3.9	1.8	01105002
WC-61	0.250	6.4	0.062	1.6	100	7.37	187	10.63	270	3.9	1.8	01105003

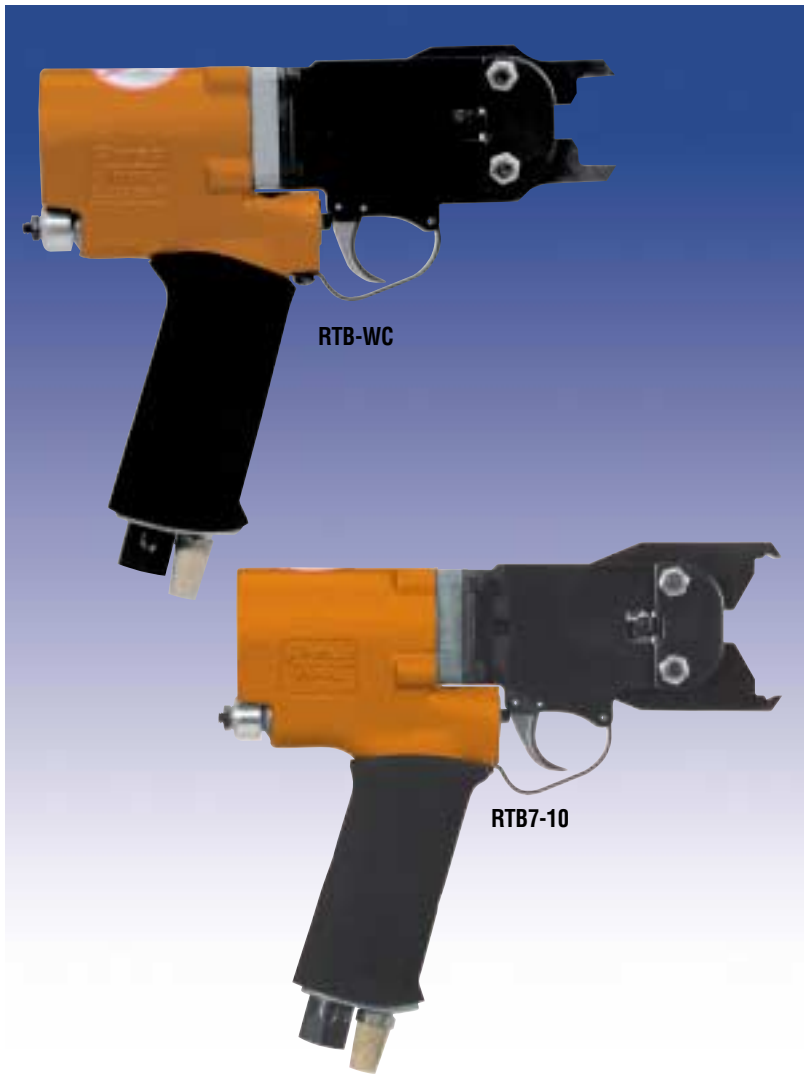
•For loose staples – all others for glued sticks

STANDARD EQUIPMENT

Cushion grip handle
 Contoured trigger guard
 Magazine with 100+staples capacity
 1/8" NPT inlet

OPTIONAL EQUIPMENT

Ring guard
 Rounded trigger guard
 1/4" NPT inlet
 Suspension bail 0112-9135



ROTOR TOOL®

- For folding locking tabs on railcar axle bearing caps
- Single trigger-pull activation

DOBCO EQUIPMENT LTD

Model Number	Freight Axle		Cap Screw Size	Passenger Axle Class	Locomotive Axle Class	Length		Weight		Ordering Number
	Class	Tons				in	mm	lb	kg	
RTB-WC	—	—	1/2	—	—	8.94	222	3.2	1.5	09045001
RTBP	—	—	5/8, 3/4	—	—	8.94	222	3.2	1.5	09055001
RTB5	D	50	7/8	E, F/EE, G	GG	8.94	222	3.2	1.5	09035001
RTB7-10	E, F	70, 100	1, 1-1/8	—	G	8.94	222	3.2	1.5	09015001
RTB12	G	125	1 1/4	—	—	9.12	232	3.2	1.5	09025001

STANDARD EQUIPMENT
Cushion Grip

OPTIONAL EQUIPMENT
Suspension bail 0112-9135

Specialty Tools

Fas-Sert

ROTOR TOOL®

- For use with most types of collapsible fasteners
- Provides threaded hole in sheet metal or other thin materials/assemblies



DOBCO
EQUIPMENT LTD

Model Number	Capacity	Stall Torque		Free Speed	Height		Length w/o Mandrel		Weight		Ordering Number
		ft lbs	Nm		in	mm	in	mm	lb	kg	
S22PR2TN-010	8-32	4	5.6	1000	6.06	154	8.63	219	2.25	1.02	55065002
S22PR5M-006	M5 x 0.8	6.5	8.8	640	6.06	154	8.63	219	2.25	1.02	55065012
S100PRD6M-015	M6x1	11	15	1550	6.75	171	9.44	240	4.25	1.90	46C65035
S100PRD6M-012	M6x1	14	19	1250	6.75	171	9.44	240	4.25	1.90	46C65034
S100PRD5TN-009	5/16 18	19	26	925	6.75	171	10.44	265	4.50	2.00	46C65027
S100PRD8M-009	M8X1.25	19	26	925	6.75	171	10.44	265	4.50	2.00	46C65033
S100PHRD8TN-003	1/2-13	60	81	272	6.75	171	10.94	278	5.25	2.38	46B65010

STANDARD EQUIPMENT

Pushbutton reverse (S22) or flip reverse (S100)
Mandrel as specified

OPTIONAL EQUIPMENT

Suspension bails
Selectork on S100 models
Piped-away exhaust

General Accessories

Ergonomic Tool Balancers

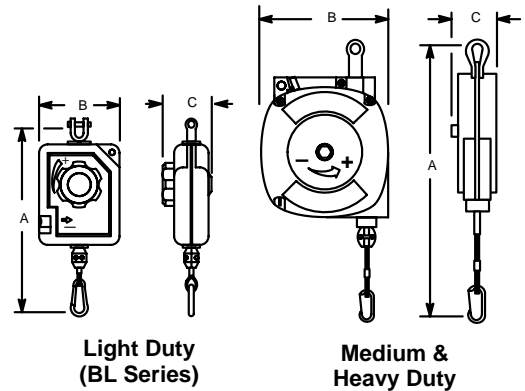
ROTOR TOOL®

Capacity:
0.5 – 45.5 kg
1.0 – 100 Lbs.

- External Tension Adjustment
- 360° Swivel
- Retracting in-line Cable

DOBCO

EQUIPMENT LTD



Model Number	Lock Feature	Capacity		"A"		"B"		"C"		Weight	
		lbs.	kg	in	mm	in	mm	in.	mm	lbs.	kg
Light Duty – 5.2 ft. (1.6m) Cable Travel											
BL-2A	-	2.0-1.0	0.9-0.5	10.4	263	4.0	102	2.2	56	1.1	0.5
BL-4A	-	4.0-20	1.8-0.9	10.4	263	4.0	102	2.2	56	1.1	0.5
Light Duty – 6.7 ft. (2.0m) Cable Travel											
BL-6A	-	6.0-4.0	2.7-1.8	12.9	327	5.5	140	3.1	79	3.3	1.5
BLL-6A	Ratchet	6.0-4.0	2.7-1.8	12.9	327	5.5	140	3.1	79	3.3	1.5
BL-8A	-	8.0-6.0	3.6-2.7	12.9	327	5.5	140	3.1	79	3.3	1.5
BLL-8A	Ratchet	8.0-6.0	3.6-2.7	12.9	327	5.5	140	3.1	79	3.3	1.5
Medium Duty – 6.6ft. (2.0m) Cable Travel											
BM-13A	Non-Locking	13-9.0	5.9-4.1	13.8	350	6.9	175	4.5	114	9.0	4.1
BML-13A	Lock/Release	13-9.0	5.9-4.1	13.8	350	6.9	175	4.5	114	9.0	4.1
BM-18A	Non-Locking	18-13	8.2-5.9	13.8	350	6.9	175	4.5	114	9.0	4.1
Medium Duty – 6.0ft. (1.8m) Cable Travel											
BM-25A	Automatic	25-18	11.4-8.2	20.7	527	7.8	197	6.6	169	19	8.6
BM-35A	Automatic	35-25	15.9-11.4	20.7	527	7.8	197	6.6	169	19	8.6
BM-45A	Automatic	45-35	20.5-15.9	20.7	527	7.8	197	6.6	169	19	8.6
Heavy Duty – 7.0ft. (2.1m) Cable Travel											
BH-45A	Automatic	45-30	20.5-13.6	25.2	640	9.3	235	7.9	200	40	18
BH-60B*	Automatic	60-45	27.3-20.5	25.2	640	9.3	235	7.9	200	40	18
BH-70A	Automatic	70-60	31.8-27.3	25.2	640	9.3	235	7.9	200	40	18
BH-80A	Automatic	80-70	36.4-31.8	25.2	640	9.3	235	7.9	200	40	18
BH-90A	Automatic	90-80	40.9-36.4	25.2	640	9.3	235	7.9	200	40	18
BH-100A	Automatic	100-90	45.4-40.9	25.2	640	9.3	235	7.9	200	40	18

*4.9 ft. Cable Travel

General Accessories

Sockets & Extensions

APEX

Quality Fastener Tools

For more than half a century Apex has maintained the position of world leader in industrial fastening tools. Many power and insert bits, socket combinations and other drivers/adapters pioneered by Apex have today become industry standards, while Apex quality, service and selection give you unsurpassed value.

■ More Quality For Your Money

Apex quality starts with the selection of raw materials. Only carefully chosen, high grade tool steel is used to make Apex industrial fastener tools. Next, each tool is precision machined from solid bar stock to exacting standards of accuracy. You always get a snug, secure fit – a fit not possible from stamped tools.

Finally, each Apex fastener tool is tempered with our exclusive heat treating process. During this step the degree of hardness is determined based upon the application.

■ Fast Delivery

All Apex standard catalog items are available off-the-shelf for immediate delivery. If you need special assistance with your order, your Apex manufacturer's representative can handle any questions you may have.

■ Special Orders

Apex offers the broadest selection of screw driver and nut runner tools available, from bits, sockets and universal wrenches to extensions, adapters and nut setters. If you have a special application, contact your Apex representative. We may have what you need in stock, or can design and produce special fastener tools for almost any application.

For a catalog of the complete line of Apex Quality Fastener Tools, please contact your local Apex Distributor.



DOBCO
EQUIPMENT LTD

Square Drive Size	Ordering Number	Hex Size	Length		Diameter Nose End		Diameter Drive End	
			(in)	(mm)	(in)	(mm)	(in)	(mm)
3/8	3108	1/4	1 1/4	31.75	7/16	11.11	3/4	19.05
3/8	3110	5/16	1 1/4	31.75	1/2	12.70	3/4	19.05
3/8	3112	3/8	1 1/4	31.75	19/32	15.08	3/4	19.05
3/8	3114	7/16	1 1/4	31.75	11/16	17.46	3/4	19.05
3/8	3116	1/2	1 1/4	31.75	13/16	20.64	13/16	20.64
3/8	10MM13	10MM	1 1/4	31.75	21/32	16.67	3/4	19.05
3/8	12MM13	12MM	1 1/2	38.1	3/4	19.05	3/4	19.05
3/8	14MM13	14MM	1 1/2	38.1	7/8	22.23	7/8	22.23
3/8	15MM13	15MM	1 1/2	38.1	7/8	22.23	7/8	22.23
3/8	19MM13	19MM	1 1/2	38.1	1 1/8	28.58	1 1/8	28.58
1/2	5112	3/8	1 1/2	38.1	5/8	15.88	15/16	23.81
1/2	5114	7/16	1 1/2	38.1	11/16	17.46	15/16	23.81
1/2	5116	1/2	1 1/2	38.1	13/16	20.64	15/16	23.81
1/2	5118	9/16	1 1/2	38.1	7/8	22.23	15/16	23.81
1/2	5120	5/8	1 1/2	38.1	1	25.40	1	25.40
1/2	5122	11/16	1 1/2	38.1	1 1/8	28.58	1 1/8	28.58
1/2	5124	3/4	1 1/2	38.1	1 1/8	28.58	1 1/8	28.58
1/2	12MM15	12MM	1 1/2	38.1	3/4	19.05	15/16	23.81
1/2	14MM15	14MM	1 1/2	38.1	7/8	22.23	15/16	23.81
1/2	15MM15	15MM	1 1/2	38.1	15/16	23.81	15/16	23.81
1/2	19MM15	19MM	1 1/2	38.1	1 1/8	28.58	1 1/8	28.58
1/2	20MM15	20MM	1 1/2	38.1	1 1/4	31.75	1 1/4	31.75
1/2	22MM15	22MM	1 1/2	38.1	1 5/16	33.34	1 5/16	33.34
1/2	24MM15	24MM	1 1/2	38.1	1 3/8	34.93	1 3/8	34.93
3/4	7118	9/16	2	50.8	7/8	22.23	1 1/2	38.10
3/4	7120	5/8	2	50.8	1 1/16	26.99	1 1/2	38.10
3/4	7122	11/16	2	50.8	1 1/8	28.58	1 1/2	38.10
3/4	7124	3/4	2	50.8	1 1/4	31.75	1 1/2	38.10
3/4	7126	13/16	2	50.8	1 3/8	34.93	1 1/2	38.10
3/4	7128	7/8	2	50.8	1 1/2	38.10	1 1/2	38.10
3/4	7130	15/16	2	50.8	1 1/2	38.10	1 1/2	38.10
3/4	7132	1	2	50.8	1 5/8	41.28	1 5/8	41.28
3/4	7138	1 3/16	2 1/8	53.975	1 7/8	47.63	1 3/4	44.45
3/4	22MM17	22MM	2	50.8	1 1/2	38.10	1 1/2	38.10
3/4	24MM17	24MM	2	50.8	1 1/2	38.10	1 1/2	38.10
3/4	28MM17	28MM	2 1/8	53.975	1 3/4	44.45	1 3/4	44.45
3/4	30MM17	30MM	2 1/8	53.975	1 7/8	47.63	1 3/4	44.45
3/4	36MM17	36MM	2 1/4	57.15	2 1/4	57.15	2 1/8	53.98
1	8132	1	2 1/8	53.975	1 5/8	41.28	2	50.80
1	8134	1 1/16	2 1/8	53.975	1 11/16	42.86	2	50.80
1	8136	1 1/8	2 1/8	53.975	1 3/4	44.45	2	50.80
1	8138	1 3/16	2 1/8	53.975	2 1/8	53.98	2	50.80
1	8140	1 1/4	2 1/8	53.975	2 1/8	53.98	2 1/8	53.98
1	8142	1 5/16	2 1/8	53.975	2 1/8	53.98	2 1/8	53.98
1	8144	1 3/8	2 1/8	53.975	2 1/8	53.98	2 1/8	53.98
1	8146	1 7/16	2 1/4	57.15	2 1/4	57.15	2 1/8	53.98
1	8148	1 1/2	2 1/4	57.15	2 1/4	57.15	2 1/8	53.98
1 1/2	9148	1 1/2	2 3/4	69.85	2 1/2	63.50	3	76.20
1 1/2	9156	1 3/4	2 7/8	73.025	2 7/8	73.03	3	76.20



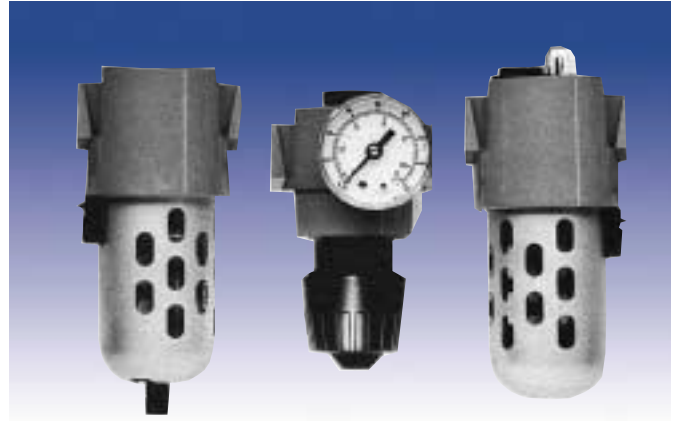
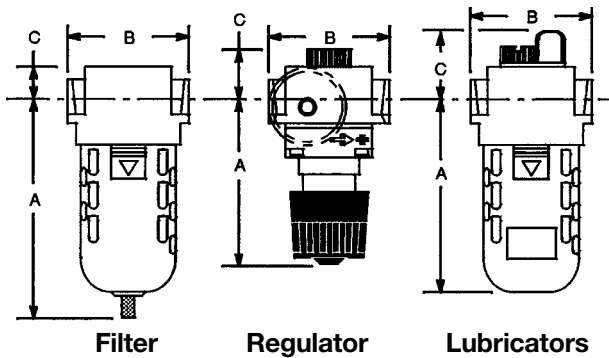
Extensions/Adapters

Ordering Number	Male Square (in)	Male Square (mm)	Female Square (in)	Female Square (mm)	Length (in)	Length (mm)
EX-376-2	3/8	9.525	3/8	9.525	2	50.8
EX-376-6	3/8	9.525	3/8	9.525	6	152.4
EX-503	1/2	12.7	3/8	9.525	1 1/2	38.1
EX-508-2	1/2	12.7	1/2	12.7	2	50.8
EX-508-6	1/2	12.7	1/2	12.7	6	152.4
EX-751	3/4	19.05	1/2	12.7	1 1/2	38.1
EX-755-6	3/4	19.05	3/4	19.05	6	152.4
EX-1003-6	1	25.4	1	25.4	6	152.4

General Accessories

Filters, Regulators, Lubricators

Modular Construction



Model Number	NPT Size	Air Flow		Bowl Capacity		Dimensions					
						A		B		C	
						in.	mm	in.	mm	in.	mm

Filters

F02-M	1/4	35	9.9	5.0	0.15	5.6	142	3.0	76	0.9	23
F03-M	3/8	44	12.9	5.0	0.15	5.6	142	3.0	76	0.9	23
F04-M	1/2	138	39.1	10	0.30	6.4	163	3.4	86	1.0	25

Lubricators – Economist (Standard Mist)

L02-EP	1/4	28	3.7	5.0	0.15	4.8	122	3.0	76	1.6	41
L03-EP	3/8	48	6.2	5.0	0.15	4.8	122	3.0	76	1.6	41
L04-EP	1/2	102	13.6	10	0.30	5.4	137	3.4	86	1.6	41

Lubricators – Atomist (Fine Mist)

L02-AP	1/4	28	3.7	5.0	0.15	4.8	122	3.0	76	1.6	41
L03-AP	3/8	48	6.2	5.0	0.15	4.8	122	3.0	76	1.6	41
L03-AP	1/2	102	13.6	10	0.30	5.4	137	3.4	86	1.6	41

Model Number	NPT Size	Air Flow		Pressure Range (maximum)		Dimensions					
						A		B		C	
						in.	mm	in.	mm	in.	mm

Regulators

RO2-G	1/4	80	10.8	125	8.5	3.9	99	3.0	76	1.3	33
RO3-G	3/8	80	10.8	125	8.5	3.9	99	3.0	76	1.3	33
RO4-G	1/2	195	26.1	125	8.5	5.6	142	3.4	86	1.4	36

Modular Sleeve (with O-Ring)

Model: MS101

Unique modular sleeve design easily and quickly connects one or more units and accessories together without pipe nipples. Hand tightening the threaded pin provides a tight seal between the units. Modular sleeves do not add length to combination assemblies, and make a more compact installation.



Modular Sleeve & Bracket (with O-Ring)

Model: MS101

Combination sleeve/wall mounting bracket as shown. Designed for mounting a single unit or combination of units directly to the wall. The sleeve and mounting bracket can be ordered assembled from the factory, or just the mounting bracket alone to be used on existing modular sleeves.



Modular End Blocks (sold in pairs)

Model: 1/4" NPTF – EB-102

3/8" NPTF – EB-103

1/2" NPTF – EB-104

3/4" NPTF – EB-106

The threaded End Blocks, together with the modular sleeves, allows a single unit or a combination of units to be piped into the air system in the modular mode. This feature allows ease of unit servicing or replacement without disturbing the airline connections. End blocks add 1.19" (30mm) to each end of the unit where used.

NOTE: The 3/4" end blocks are designed only to adapt to 3/4" piping systems and do not increase flow ratings listed for any unit.



Automatic Drain

Model: AD-101

Automatic Mechanical Drain is a float-type mechanism with a 1/8" NPT threaded drain port completely enclosed in the filter bowl. The float is constructed of rigid cellular rubber. The drain will operate automatically under air pressure ranging from 20 to 175 psig (1.5 to 12 bar).



Technical Information

Surge Tank Size

When sufficient compressor capacity is not available to meet the air consumption requirements of all tools in a particular installation, one or more surge tanks may be placed in the air supply system. Minimum surge tank volume, in cubic feet, is calculated from the following equation (Reprinted from the Compressed Air and Gas Handbook):

$$V = \frac{T_x [C - S] \times 0.245}{[P1 - P2]}$$

- V = minimum surge tank volume in cubic feet
- T = time, in seconds, for surge tank pressure to drop from P1 to P2
(the value used here should be slightly greater than the average time it takes to run each job)
- C = peak air consumption in cubic feet per minute (cfm)
- S = max compressor output in cubic feet per minute (cfm)
- P1 = pressure in tank, in psig, after start of job (typically the maximum system pressure)
- P2 = pressure in tank, in psig, after discharging for time T (typically the minimum tool operating pressure)

As an example of how to apply this equation, consider the following situation: A four spindle multiple requiring 160 cfm of air at a minimum of 85 psig is installed on a system which can only supply 50 cfm. Maximum line pressure is 125 psig and it takes 15 seconds to completely tighten the fasteners. By plugging these numbers into the equation:

$$\frac{15 \times [160 - 50] \times 0.245}{[125 - 85]} = 10.1$$

we find that the minimum surge tank volume for this application is 10.1 cubic feet. The table below lists the dimensions of commonly used tanks. The next size larger than 10.1 is 11 cubic feet.

Air Consumption (cfm)	Hose Length		
	8 ft	25 ft	50 ft

Dimensions of Commonly Used Surge Tanks

Surge Tank Size (cu ft)	8 ft	25 ft	50 ft
0-20	.313	.375	.500
20-30	.375	.375	.500
30-40	.375	.500	.500
40-50	.500	.500	.750
50-60	.500	.750	.750
60-70	.500	.750	.750
70-80	.750	.750	.750
80-90	.750	.750	1.000
90-100	.750	.750	1.000



Diameter (in)	Length (ft)	Volume (cu ft)
---------------	-------------	----------------

Dimensions of Commonly Used Surge Tanks

14	4	4.5
18	6	11
24	6	19
30	7	34
36	8	57
42	10	96
48	12	151
54	14	223
60	16	314
66	18	428

When selecting any tank for compressed air storage, be sure to specify one that meets the American Society of Mechanical Engineers code for unified pressure vessels as well as any other state or municipal codes which might apply.

Inch to Millimeter Conversion

Inches	mm
1/32	.794
1/16	1.588
3/32	2.382
1/8	3.175
5/32	3.969
3/16	4.763
7/32	5.556
1/4	6.350
9/32	7.144
5/16	7.938
11/32	8.731
3/8	9.525
13/32	10.32
7/16	11.11
15/32	11.91
1/2	12.70
17/32	13.49
9/16	14.29
19/32	15.08
5/8	15.88
21/32	16.67
11/16	17.46
23/32	18.26
3/4	19.05
25/32	19.84
13/16	20.64
27/32	21.43
7/8	22.23
29/32	23.02
15/16	24.61
1	25.40

Air Consumption of Rotor Tools

Description	cfm
-------------	-----

Assembly Motors

22	15
22 rev.	18
52	23
52 rev.	25
54	22
54 rev.	24
100	55
100 rev.	60
101	40
Airiter	1

Conversion Table

Millimeter – Decimal – Fraction

mm	Dec.	in.	mm	Dec.	in.	mm	Dec.	in.	mm	Dec.	in.	mm	Dec.	in.
0.100	.0039		5.159	.2031	13/64	10.200	.4016		15.300	.6024		20.300	.7992	
0.200	.0079		5.200	.2047		10.300	.4055		15.400	.6063		20.400	.8031	
0.300	.0118		5.300	.2087		10.319	.4063	13/32	15.478	.6094	39/64	20.500	.8071	
0.397	.0156	1/64	5.400	.2126		10.400	.4094		15.500	.6102		20.600	.8110	
0.400	.0157		5.500	.2165		10.500	.4134		15.600	.6142		20.638	.8125	13/16
0.500	.0197		5.556	.2188	7/32	10.600	.4173		15.700	.6181		20.700	.8150	
0.600	.0236		5.600	.2205		10.700	.4213		15.800	.6220		20.800	.8189	
0.700	.0276		5.700	.2244		10.716	.4219	27/64	15.875	.6250	5/8	20.900	.8228	
0.794	.0313	1/32	5.800	.2283		10.800	.4252		15.900	.6260		21.000	.8268	
0.800	.0315		5.900	.2323		10.900	.4291		16.000	.6299		21.034	.8281	53/64
0.900	.0354		5.953	.2344	15/64	11.000	.4331		16.100	.6339		21.100	.8307	
1.000	.0394		6.000	.2362		11.100	.4370		16.200	.6378		21.200	.8346	
1.100	.0433		6.100	.2402		11.113	.4375	7/16	16.272	.6406	41/64	21.300	.8386	
1.191	.0469	3/64	6.200	.2441		11.200	.4409		16.300	.6417		21.400	.8425	
1.200	.0472		6.300	.2480		11.300	.4449		16.400	.6457		21.431	.8438	27/32
1.300	.0512		6.350	.2500	1/4	11.400	.4488		16.500	.6496		21.500	.8465	
1.400	.0551		6.400	.2520		11.500	.4528		16.600	.6535		21.600	.8504	
1.500	.0591		6.500	.2559		11.509	.4531	29/64	16.669	.6563	21/32	21.700	.8543	
1.588	.0625	1/16	6.600	.2598		11.600	.4567		16.700	.6575		21.800	.8583	
1.600	.0630		6.700	.2638		11.700	.4606		16.800	.6614		21.828	.8594	55/64
1.700	.0669		6.747	.2656	17/64	11.800	.4646		16.900	.6654		21.900	.8622	
1.800	.0709		6.800	.2677		11.900	.4685		17.000	.6693		22.000	.8661	
1.900	.0748		6.900	.2717		11.906	.4688	15/32	17.066	.6719	43/64	22.100	.8701	
1.984	.0781	5/64	7.000	.2756		12.000	.4724		17.100	.6732		22.200	.8740	
2.000	.0787		7.100	.2795		12.100	.4764		17.200	.6772		22.225	.8750	7/8
2.100	.0827		7.144	.2813	9/32	12.200	.4803		17.300	.6811		22.300	.8780	
2.200	.0866		7.200	.2835		12.300	.4843		17.400	.6850		22.400	.8819	
2.300	.0906		7.300	.2874		12.303	.4844	31/64	17.463	.6875	11/16	22.500	.8858	
2.381	.0938	3/32	7.400	.2913		12.400	.4882		17.500	.6890		22.600	.8898	
2.400	.0945		7.500	.2953		12.500	.4921		17.600	.6929		22.622	.8906	57/64
2.500	.0984		7.541	.2969	19/64	12.600	.4961		17.700	.6968		22.700	.8937	
2.600	.1024		7.600	.2992		12.700	.5000	1/2	17.800	.7008		22.800	.8976	
2.700	.1063		7.700	.3031		12.800	.5039		17.859	.7031	45/64	22.900	.9016	
2.778	.1094	7/64	7.800	.3071		12.900	.5079		17.900	.7047		23.000	.9055	
2.800	.1102		7.900	.3110		13.000	.5118		18.000	.7087		23.019	.9063	29/32
2.900	.1142		7.938	.3125	5/16	13.097	.5156	33/64	18.100	.7126		23.100	.9094	
3.000	.1181		8.000	.3150		13.100	.5157		18.200	.7165		23.200	.9134	
3.100	.1220		8.100	.3189		13.200	.5197		18.256	.7188	23/32	23.300	.9173	
3.175	.1250	1/8	8.200	.3228		13.300	.5236		18.300	.7205		23.400	.9213	
3.200	.1260		8.300	.3268		13.400	.5276		18.400	.7244		23.416	.9219	59/64
3.300	.1299		8.334	.3281	21/64	13.494	.5313	17/32	18.500	.7283		23.500	.9252	
3.400	.1339		8.400	.3307		13.500	.5315		18.600	.7323		23.600	.9291	
3.500	.1378		8.500	.3346		13.600	.5354		18.653	.7344	47/64	23.700	.9331	
3.572	.1406	9/64	8.600	.3386		13.700	.5394		18.700	.7362		23.800	.9370	
3.600	.1417		8.700	.3425		13.800	.5433		18.800	.7402		23.813	.9375	15/16
3.700	.1457		8.731	.3438	11/32	13.891	.5469	35/64	18.900	.7441		23.900	.9409	
3.800	.1496		8.800	.3465		13.900	.5472		19.000	.7480		24.000	.9449	
3.900	.1535		8.900	.3504		14.000	.5512		19.050	.7500	3/4	24.100	.9488	
3.969	.1563	5/32	9.000	.3543		14.100	.5551		19.100	.7520		24.200	.9528	
4.000	.1575		9.100	.3583		14.200	.5591		19.200	.7559		24.209	.9531	61/64
4.100	.1614		9.128	.3594	23/64	14.288	.5625	9/16	19.300	.7598		24.300	.9567	
4.200	.1654		9.200	.3622		14.300	.5630		19.400	.7638		24.400	.9606	
4.300	.1693		9.300	.3661		14.400	.5669		19.447	.7656	49/64	24.500	.9646	
4.366	.1719	11/64	9.400	.3701		14.500	.5709		19.500	.7677		24.600	.9685	
4.400	.1732		9.500	.3740		14.600	.5748		19.600	.7717		24.606	.9688	31/32
4.500	.1772		9.525	.3750	3/8	14.684	.5781	37/64	19.700	.7756		24.700	.9724	
4.600	.1811		9.600	.3780		14.700	.5787		19.800	.7795		24.800	.9764	
4.700	.1850		9.700	.3819		14.800	.5827		19.844	.7813	25/32	24.900	.9803	
4.763	.1875	3/16	9.800	.3858		14.900	.5866		19.900	.7835		25.000	.9843	
4.800	.1890		9.900	.3898		15.000	.5906		20.000	.7874		25.003	.9844	63/64
4.900	.1929		9.922	.3906	25/64	15.081	.5938	19/32	20.100	.7913		25.100	.9882	
5.000	.1969		10.000	.3937		15.100	.5945		20.200	.7953		25.200	.9921	
5.100	.2008		10.100	.3976		15.200	.5984		20.241	.7969	51/64	25.300	.9961	
									25.400	1.000				1



Conversion Table

Torque – Air Pressure – Miscellaneous

Torque Conversion – In. Lbs (Nm)

In. Lbs.	Nm	In. Lbs.	Nm	In. Lbs.	Nm
5	0.6	50	5.7	140	15.8
10	1.1	60	6.8	150	17.0
15	1.7	70	7.9	160	18.1
20	2.3	80	9.0	170	19.2
25	2.8	90	10.2	180	20.3
30	3.4	100	11.3	190	21.5
35	4.0	110	12.4	200	22.6
40	4.5	120	13.6		
45	5.1	130	14.7		

Torque Conversion – Ft. Lbs (Nm)

Ft. Lbs.	Nm	Ft. Lbs.	Nm	Ft. Lbs.	Nm
1	1.36	43	58.3	85	115.3
2	2.7	44	60.0	86	117.0
3	4.1	45	61.0	87	118.0
4	5.4	46	62.4	88	119.3
5	6.8	47	63.7	89	121.0
6	8.1	48	65.1	90	122.0
7	9.5	49	66.4	91	123.4
8	10.9	50	67.8	92	125.0
9	12.2	51	69.2	93	126.1
10	13.6	52	70.5	94	127.5
11	14.9	53	71.9	95	129.0
12	16.3	54	73.2	96	130.2
13	17.6	55	74.6	97	131.5
14	19.0	56	75.9	98	133.0
15	20.3	57	77.3	99	134.2
16	21.7	58	78.7	100	135.6
17	23.1	59	80.0	110	149.2
18	24.4	60	81.4	115	156.0
19	25.8	61	82.7	120	163.0
20	27.1	62	84.1	125	170.0
21	28.5	63	85.4	130	176.3
22	29.8	64	86.8	135	183.1
23	31.2	65	88.1	140	190.0
24	32.5	66	90.0	145	197.0
25	33.9	67	90.9	150	203.4
26	35.3	68	92.2	155	210.2
27	36.6	69	93.6	160	217.0
28	38.0	70	94.9	165	224.0
29	39.3	71	96.3	170	231.0
30	40.7	72	97.6	175	237.3
31	42.0	73	99.0	180	244.1
32	43.4	74	100.3	185	251.0
33	44.8	75	102.0	190	258.0
34	46.1	76	103.1	195	264.4
35	47.5	77	104.4	200	271.2
36	48.8	78	105.8	225	305.1
37	50.2	79	107.1	250	339.0
38	52.0	80	108.5	275	373.0
39	52.9	81	110.0	300	407.0
40	54.2	82	111.2	350	475.0
41	55.6	83	112.6	400	542.4
42	57.0	84	114.0		

Torque Conversion Factors

To Convert	Into	Multiply By
Inch Pounds	Foot Pounds	0.0835
Inch Pounds	Newton meters	0.1130
Inch Pounds	Kg-meters	0.0115
Inch Pounds	Kg-Cm	1.1519
Foot Pounds	Inch Pounds	12.0000
Foot Pounds	Newton meters	1.3560
Foot Pounds	Kg-meters	0.1382
Foot Pounds	Kg-Cm	13.8240
Newton meters	Inch Pounds	8.8440
Newton meters	Foot Pounds	0.7370
Newton meters	Kg-meters	0.1020
Newton metes	Kg-Cm	10.2000
Kg-meters	Inch Pounds	86.8100
Kg-meters	Foot Pounds	7.2340
Kg-meters	Newton meters	9.8040
Kg-Cm	Inch Pounds	0.8681
Kg-Cm	Foot Pounds	0.0723
Kg-Cm	Newton meters	0.0980

Miscellaneous Conversion Factors

To Convert	Into	Multiply By
Inches	Millimeters	25.4000
Millimeters	Inches	0.0394
Pounds	Kilograms	0.4536
Kilograms	Pounds	2.2050
psi	bar	0.069
bar	psi	14.5

Air Pressure Conversion

PSI	kPa*	Bar**
85	586	5.9
90	620	6.2
95	655	6.6
100	690	6.9
125	860	8.6

(*) Preferred: Approximate to the nearest 5 kPa.

(**) Approximate to the nearest 0.5 Bar.

Hex Socket Conversion

mm	inches	mm	inches
6 mm	.236"	16 mm	.630"
7 mm	.276"	17 mm	.669"
8 mm	.315"	18 mm	.709"
9 mm	.354"	19 mm	.748"
10 mm	.394"	20 mm	.787"
11 mm	.433"	21 mm	.827"
12 mm	.472"	22 mm	.866"
13 mm	.512"	23 mm	.906"
14 mm	.551"	24 mm	.945"
15 mm	.591"	25 mm	.984"

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