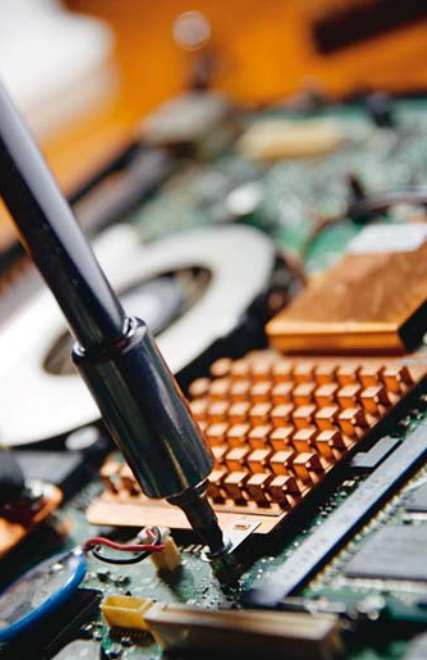




# Power Tools

Industrial Tools for Professional Users

Extract from the full catalogues



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## Brief Overview

### Cleco®

Assembly tools and material removal tools. With more than 100 years of experience in precision manufacturing, Cleco is the first choice worldwide especially for discerning demands in hand-held assembly tool technologies.



### Airetool

Tube cleaner- and tube expander technology as well as rolling motors. Well-known machines and tools in the industry applied for manufacturing and maintenance of heat exchangers, coolers, condensers or vessels.



### DOTCO®

Material removal tools, drills, grinders, polishers. Ergonomically designed tools for discerning material removal applications. Dotco is well-known for durable and reliable tools and accessories.



### MP Master Power

Assembly-, material removal- and finishing tools. More than 70 years of experience are integrated into the high quality pneumatic tools for industrial fastening-, drilling-, cutting-, grinding- and finishing applications.



### APEX®

Bits, sockets and universal joints. One of the leading and most comprehensive product lines for sockets, bits, extensions and protective covers up to universal joints for industrial applications.





**Model DAS-100-TRS**

Rolling systems for workbench mounting and for applications with 1/4" to 5/8" tube outside diameter

- Robust design
- Trigger start for each cycle
- Makes it possible to align the expander
- Absorbs the torque
- Supports up to 3 kg
- Increases productivity
- Lower force application due to ergonomic design
- Developed for usage with the series 800, 900 and 1300 tube rollers

**Operation**

Air cylinders provide the counterweight to the arm. To ease operation, the pressure can be adjusted to suit the weight of the tool. The modified 720 Airetool rolling motors are switched on using a trigger start. Once the tube expander is positioned in the tube, the motor starts to expand the tube in a forward direction with gentle forward pressure. As soon as the torque set is reached, the motor switches automatically to counter clockwise and the tube expander can be removed from the tube. The tube expander is spring mounted and therefore remains in its retracted position to ease insertion in the tube. The expander holder also prevents the tube spinning during the expanding process.

**Three models are available:**

- DAS 100 TRS 720 2500 for tube sizes 1/4" outside diameter.\*
  - DAS 100 TRS 720 1800 for tube sizes 3/8" – 1/2" outside diameter.\*
  - DAS 100 TRS 720 550 for tube sizes 1/2" – 5/8" outside diameter.\*
- Post height: 29"  
 Total horizontal length: 77"  
 Total vertical length: 14.5"

Model Number	Part Number	Speed & Torque at 6.2 bar Air Pressure*					CFM	Chuck	
		Speed (rpm)	Max. Torque		Min. Torque			Incl.	Opt.
			in. lbs.	Nm	in. lbs.	Nm			
DAS 100 TRS 720 2500B	5525242	2500	20	2.29	2	0.23	17	1/4"	3/8"
DAS 100 TRS 720 1800B	5525243	1800	27	3.05	2	0.23	17	1/4"	3/8"
DAS 100 TRS 720 550B	5525244	550	75	8.47	2	0.23	17	3/8"	1/4"

\*Varies with tube material, gauge and bore size of the tube sheet.

# Airetool Heat Exchanger & Condenser Tube Expanders Overview



## The World Standard for Tube Expanders

Airetool heat exchanger and condenser tube expanders have long been recognised as the standard against which all other brands are measured. The additional time we invest in the manufacturing of our expanders results in the consistent performance and incredible durability as expected by heat exchanger OEMs.

### Tube Expanders

Tube expanding is the art of cold forming the ends of tubes to provide close contact with the metal of the surrounding tube bores to form a tight mechanical seal and/or connection. In other words it is a mechanical method for creating a mechanical connection between a tube and a tube bore.

Airetool manufactures condenser, heat exchanger, boiler and furnace expanders as well as a large number of expanders for special applications.

#### Tube expanders comprise:

**Mandrel:** A conical pin in the centre that presses the rolls against the tube when it is driven forward.

**Rolls:** A set of three or more conical cylindrical parts that are driven by the mandrel and that are in contact with the tube walls to be expanded. The taper on the rolls is in the opposite direction and is half the taper on the mandrel on a parallel roller.

**Cage:** This is the housing of the expander, as it fixes the mandrel and the rolls. The recesses that contain the rolls also have a feed angle that draws in the mandrel to provide the expansion of the rolls.

Mandrel, rolls and cage are three components you will find in all expanders. Other parts classify the expander model.

**Thrust assembly:** This assembly sits on the cage and permits the adjustment of the expansion depth. The thrust collar remains stationary at the tube sheet or at the end of the tube while the cage, mandrel and rolls expand the tube. You will find the thrust assembly on condenser, heat exchanger, some furnace and special application expanders.



## Series G-900

Outside diameter: 1/4" – 3/8" (6.3 – 9.5 mm)

- Expander with 3/4" (19.0 mm) long rolls, accommodates tube sheet thicknesses from 1/4" to 3/4" (6.3 to 19.0 mm)
- Expander with 1-1/4" (31.7 mm) long rolls, accommodates tube sheet thicknesses from 3/4" to 1-1/4" (19.0 to 31.7 mm)
- These expanders accommodate a large range of tube sheet thicknesses.



## Series G-1300

Outside diameter: 3/8" (9.5 mm)

- Expander with 3/4" (19.0 mm) long rolls, accommodates tube sheet thicknesses from 3/4" to 3" (19.0 to 76.2 mm)
- Expander with 1-1/4" (31.7 mm) long rolls, accommodates tube sheet thicknesses from 1-1/4" to 3-1/2" (31.7 to 88.9 mm)
- These expanders accommodate a large range of tube sheet thicknesses.



## Series G-800 – 3-rolls

Outside diameter: 1/2" – 1-1/2" (12.7 – 38.1 mm)

- Expander with 1-1/2" (38.1 mm) long rolls, accommodates tube sheet thicknesses from 1/2" to 1-1/2" (12.7 to 38.1 mm)
- Expander with 2-1/4" (57.1 mm) long rolls, accommodates tube sheet thicknesses from 1-1/4" to 2-1/4" (31.7 to 57.1 mm)
- New reversible thrust collar design:
- One expander provides flush and 1/8" recess tube rolling.



## Series G-1200 – 3-rolls

Outside diameter: 1/2" – 1-1/2" (12.7 – 38.1 mm)

- Expander with 1-1/2" (38.1 mm) long rolls, accommodates tube sheet thicknesses as follows:
  - STD. version 1/2" – 5" (12.7 to 127.0 mm)
  - "A" version 1/2" – 7" (12.7 to 177.8 mm)
  - "C" version 7/8" – 11" (22.2 to 279.4 mm)
- Expander with 2-1/4" (57.1 mm) long rolls, accommodates tube sheet thicknesses as follows:
  - STD. version 1-1/4" – 5-3/4" (31.7 to 146.0 mm)
  - "A" version 1-1/4" – 7-3/4" (31.7 to 196.8 mm)
  - "C" version 1-5/8" – 11-3/4" (41.3 to 298.4 mm)
- New reversible thrust collar design:
- One expander allows flush and 1/8" recess tube rolling.

NOTE: Step expanding is necessary if the tube sheet thickness exceeds the length of the rolls. Longer reaches are available on demand in 6" (50.8 mm) steps. Information on tube sizes not mentioned will be provided on request.

# Airetool Accessories

## Cleco® Drills Series 15DP

Can be used with Airetool tube end facers and push-type tube cutters.



Model Number	Speed (rpm)	Chuck Capacity		Weight
		mm		
15DP-1.6B	160	13		0.27
15DP-4B	400	13		2.5
15DP-8B	800	13		2.5
15DP-14B	1400	10		2.0

## Cleco® Drills Series 135DPV

Variable torque controlled drill. One tool for a large number of applications. Can be used with Airetool tube end facers and push-type tube cutters.



Model Number	Speed (rpm)		Chuck Capacity	Weight
	No-Load	Governed		
135-DPV-7B-43	600	150 - 550	10	1.6
135-DPV-14B-51	1250	400 - 1200	8	1.5
135-DPV-28B-51	2600	700 - 2400	8	1.4

## Tube End Facers



Tube Outside Diameter	Tool Number	Gauge	Spare Bits	
			Non-Ferrous or Carbon Steel	Stainless
9.5	TEF-375 (5519632)	16 - 20	TEF-376 (2987908)	TEF-376-SS (2991788)
12.7	TEF-500 (5332415)	16 - 20	TEF-506 (2662531)	TEF-506-SS (2983169)
15.8	TEF-625 (5332425)	14 - 18	TEF-626 (2662558)	TEF-626-SS (2983170)
19.0	TEF-750 (5332450)	10 - 18	TEF-756 (2662585)	TEF-756-SS (2983162)
22.2	TEF-875 (5332460)	14 - 18	TEF-876 (2662603)	TEF-876-SS (2983163)
25.4	TEF-1000 (5332475)	10 - 18	TEF-1006 (2662633)	TEF-1006-SS (2983164)

A set of gauges is supplied with the tube end facer tools given above. Other sizes are also available. Contact your distributor for further details.

## Beading Tool\*



Part Number	Stock Number	Radius	Shank Type
12-RM-9-5/32-R-01	2968677	5/32"	Type 01
12-RM-9-1/4-R-01	2968676	1/4"	(0.680" round x 2 3/8" long)

\* Only available on quotation.

## Belling and Flaring Tool



Belling tool: Pilot end fits in tube inside diameter with type O1 retainer.

State the tube outside diameter, gauge and radius in tube sheets.



## Extensions with Quick-Change Chuck

Use different extension lengths for difficult to access tubes. The quick-change chuck enables the operator to change the expander quickly. State the size of the square drive and the extension length.

Quick-Change Extension Complete	Stock Number	Square Drive Size Male/Female	Overall Length
			mm
•QC-375-6	5501200	3/8" (9.5 mm)	152
QC-375-8	5501600	3/8" (9.5 mm)	203
QC-375-12	5502000	3/8" (9.5 mm)	305
•QC-375-18	5503000	3/8" (9.5 mm)	457
QC-375-24	5504000	3/8" (9.5 mm)	610
QC-375-30	5504500	3/8" (9.5 mm)	762
QC-375-36	5505000	3/8" (9.5 mm)	915
QC-500-12	5507000	1/2" (12.7 mm)	305
QC-500-18	5508000	1/2" (12.7 mm)	457
•QC-500-24	5509000	1/2" (12.7 mm)	610
QC-500-30	5510000	1/2" (12.7 mm)	762
•QC-500-36	5511000	1/2" (12.7 mm)	915

## Sleeve Type Extensions

Can be used where tubes are near to the shell of the condenser. The small diameter at the end permits access to these tubes.

Quick-Change Extension Complete	Stock Number	Square Drive Size Male/Female	Overall Length
			mm
3/8 x 12	5515758	3/8" (9.5 mm)	305
•3/8 x 18	5513774	3/8" (9.5 mm)	457
•3/8 x 24	5515759	3/8" (9.5 mm)	610
•3/8 x 36	5515761	3/8" (9.5 mm)	915
•1/2 x 12	5515733	1/2" (12.7 mm)	305
1/2 x 18	5513775	1/2" (12.7 mm)	457
1/2 x 24	5515734	1/2" (12.7 mm)	610
•3/4 x 12	5515735	3/4" (19.0 mm)	305
•3/4 x 18	5515736	3/4" (19.0 mm)	457
•3/4 x 24	5515737	3/4" (19.0 mm)	610

## FT-515 – 60° Flaring Tool

Developed for flaring tubes with outside diameter 1/2" – 1-1/2" (12.7 – 38.1 mm). Available with O1 or O6 round shank, can be used with standard chisel hammers.





## Universal Joints and Extensions

Can be used for difficult to access tubes, the universal joint operates smoothly and without binding. State the size of the square drive and the extension length.

Universal Joints	Stock Number	Square Drive Size Female	Overall Length
			mm
3/8 x 3/8	2115300	3/8" (9.5 mm)	64
•1/2 x 1/2	2039800	1/2" (12.7 mm)	70
•3/4 x 3/4	2974913	3/4" (19.0 mm)	89

Universal Extensions	Stock Number	Square Drive Size Male/ Female	Overall Length
			mm
GP-3/8 x 6	5514896	3/8" (9.5 mm)	152
•GP-3/8 x 12	5514898	3/8" (9.5 mm)	305
•GP-3/8 x 18	5514899	3/8" (9.5 mm)	457



## GT Serrating Tools

- Compact design for extreme stability, increased bit life, less impact and improved accuracy
- Unique coolant system through the spindle offers excellent groove quality and unmatched bit service life
- New and improved bit design permits exactly positioned coolant
- Tool design permits simple bit replacement
- Carbide inserts remove burrs from the grooves, as a consequence additional de-burring is not necessary

Sheet Hole mm	INCH Tool Number	Shank	Standard Bit 1/8 x 1/4 x 1/8	Opt. Bit 1/8 x 3/8 x 1/8	Metric Tool Number	Shank	Standard Bit 3 x 6 x 3	Opt. Bit 3 x 10 x 3
12.7	GT 500 1270 (5526083)	3MT	GT 5003 S (2902039)	GT 5003 (2902030)	GT 500 1270M (5526115)	3MT	GT 50 363 (2902091)	GT 50 3103 (2902117)
15.8	GT 625 1588 (5525886)	3MT	GT 5003 S (2902039)	GT 5003 (2902030)	GT 625 1588M (5526116)	3MT	GT 50 363 (2902091)	GT 50 3103 (2902117)
19.05	GT 750 1905 (5525756)	3MT	GT 7503 S (2901403)	GT 7503 (2900686)	GT 750 1905M (5526117)	3MT	GT 75 363 (2902092)	GT 75 3103 (2902118)
22.2	GT 875 2223 (5525587)	3MT	GT 7503 S (2901403)	GT 7503 (2900686)	GT 875 2223M (5526118)	3MT	GT 75 363 (2902092)	GT 75 3103 (2902118)
25.4	GT 1000 2540 (5525706)	3MT	GT 7503 S (2901403)	GT 7503 (2900686)	GT 1000 2540M (5526119)	3MT	GT 75 363 (2902092)	GT 75 3103 (2902118)
19.05	GT 750 1905 1SP (5526137)	1" Rd	GT 7503 S (2901403)	GT 7503 (2900686)	GT 750 1905M 1SP (5526164)	1" Rd	GT 75 363 (2902092)	GT 75 3103 (2902118)
25.4	GT 1000 2540 1SP (5526138)	1" Rd	GT 7503 S (2901403)	GT 7503 (2900686)	GT 1000 2540M 1SP (5526165)	1" Rd	GT 75 363 (2902092)	GT 75 3103 (2902118)

• Only available on quotation.



## Tube Expander Lubricant "LUBE-A-TUBE"

- A water-soluble lubricant, specially manufactured for usage with tube expanders.
- It prevents rust and acts as a coolant for longer service life and gentler rolling.

## Airetool Tube Cutters

**Airetool RCM One Revolution** tube cutters are suitable for inch and metric tube sizes. For cutting tubes in heat exchangers, condensers and boilers.

Available in standard reaches of 6" (152 mm) and 10" (254 mm), longer reaches are available in 10" (254 mm) steps on request. These tube cutters were developed for manual use in conjunction with a ratchet or a hand wrench. Series RMC tube cutters are also excellent tools for puncturing faulty tubes prior to tube plugging, preventing a pressure build-up in plugged tubes.



Outside Diameter	BWG	Tube Inside Diameter	Tool Number	Bit
1/2"	18 - 19	0.400" - 0.420" 10.2 - 10.7 mm	RCM-105 5522994	RC-500-2 2993368
1/2"	20	0.430" - 0.450" 11.0 - 11.3 mm	RCM-110 5522929	RC-500-2 2993368
5/8"	14	0.450" - 0.470" 11.4 - 11.9 mm	RCM-115 5522995	RC-625-2 2993372
5/8"	15 - 16	0.472" - 0.510" 12.0 - 12.9 mm	RCM-120 5522930	RC-625-2 2993372
5/8"	17 - 18	0.500" - 0.531" 12.7 - 13.5 mm	RCM-130 5522931	RC-625-2 2993372
5/8"	19 - 20	0.531" - 0.560" 13.5 - 14.2 mm	RCM-135 5522932	RC-625-2 2993372
5/8"	22	0.550" - 0.580" 14.0 - 14.7 mm	RCM-140 5522932	RC-625-2 2993372
3/4"	12 - 13	0.530" - 0.560" 13.5 - 14.2 mm	RCM-135-3/4 5523115	RC-750-2A 2995865
3/4"	14 - 15	0.580" - 0.610" 14.7 - 15.5 mm	RCM-150 5522933	RC-750-2 2993374
3/4"	16	0.600" - 0.630" 15.2 - 16.0 mm	RCM-155 5522997	RC-750-2 2993374
3/4"	17 - 18	0.625" - 0.650" 15.9 - 16.5 mm	RCM-160 5522934	RC-750-2 2993374
3/4"	19 - 20	0.660" - 0.690" 16.7 - 17.5 mm	RCM-170 5522934	RC-750-2 2993374
7/8"	14 - 15	0.700" - 0.730" 17.8 - 18.5 mm	RCM-180 5522936	RC-875-2 2993384
7/8"	16 - 17	0.740" - 0.770" 18.8 - 19.5 mm	RCM-190 5522937	RC-875-2 2993384
7/8"	18	0.760" - 0.790" 19.3 - 20.0 mm	RCM-195 5522998	RC-875-2 2993384
7/8"	19 - 20	0.780" - 0.810" 19.8 - 20.6 mm	RCM-200 5522938	RC-875-2 2993384
1"	12	0.760" - 0.790" 19.3 - 20.0 mm	RCM-195 5522998	RC-875-2 2993384
1"	14	0.820" - 0.850" 20.8 - 21.6 mm	RCM-210 5522939	RC-1000-2 2993394
1"	15	0.840" - 0.870" 21.3 - 22.1 mm	RCM-215 5522999	RC-1000-2 2993394
1"	16 - 17	0.860" - 0.890" 21.8 - 22.6 mm	RCM-220 5522940	RC-1000-2 2993394

Outside Diameter	BWG	Tube Inside Diameter	Tool Number	Bit
1"	18 - 19	0.890" - 0.910" 22.6 - 23.1 mm	RCM-230 5522941	RC-1000-2 2993394
1"	22	0.940" - 0.970" 23.9 - 24.6 mm	RCM-240 5522942	RC-1000-2 2993394
1-1/4"	12	1.020" - 1.050" 25.9 - 26.7 mm	RCM-260 5523000	RC-1250-2 2993404
1-1/4"	13 - 14	1.050" - 1.080" 26.7 - 27.4 mm	RCM-270 5523001	RC-1250-2 2993404
1-1/4"	15 - 16	1.100" - 1.130" 27.9 - 28.7 mm	RCM-280 5523002	RC-1250-2 2993404
1-1/4"	17 - 19	1.130" - 1.160" 28.7 - 29.6 mm	RCM-290 5523003	RC-1250-2 2993404
1-3/8"	13 - 14	1.180" - 1.210" 30.0 - 30.7 mm	RCM-300 5523709	RC-1500-2 2993417
1-1/2"	12 - 13	1.280" - 1.310" 32.5 - 33.3 mm	RCM-330 5523004	RC-1500-2 2993417
1-1/2"	14 - 15	1.330" - 1.360" 33.8 - 34.5 mm	RCM-340 5523005	RC-1500-2 2993417
1-1/2"	16 - 17	1.360" - 1.390" 34.5 - 35.3 mm	RCM-350 5523006	RC-1500-2 2993417
1-1/2"	18 - 19	1.390" - 1.420" 35.3 - 36.1 mm	RCM-360 5523007	RC-2000-2 2993427
2"	12 - 13	1.770" - 1.810" 45.0 - 46.0 mm	RC-2012 5521677	RC-2000-2 2993427
2"	14 - 15	1.820" - 1.860" 46.2 - 47.2 mm	RC-2014 5521678	RC-2000-2 2993427
2"	16 - 17	1.860" - 1.900" 46.2 - 48.2 mm	RC-2016 5521679	RC-2000-2 2993427
2"	18 - 19	1.890" - 1.930" 48.0 - 49.0 mm	RC-2018 5521680	RC-2000-2 2993427
2-1/2"	12 - 13	2.270" - 2.310" 57.6 - 58.6 mm	RC-2512 5521680	RC-2000-2 2993427
2-1/2"	14 - 15	2.320" - 2.360" 58.9 - 60.0 mm	RC-2514 5521682	RC-2000-2 2993427
2-1/2"	16 - 17	2.360" - 2.400" 60.0 - 61.0 mm	RC-2516 5521683	RC-2000-2 2993427
2-1/2"	18 - 19	2.390" - 2.430" 60.7 - 61.7 mm	RC-2518 5521684	RC-2000-2 2993427



The **Manual Tube Puller** offers an economical method for tube replacement.

- Easy to use – to insert the spear into the tube and remove you only need a hand wrench.
- No power supply required – the manual operation makes compressed air and electrical power unnecessary; for this reason the tube puller is ideal for applications in the field.
- Durable – key components have been manufactured using the highest quality steel and heat treated for an extra long service life.
- Easy to use in tight spaces – hex on the end of the spear permits attachment to the tube without dismantling the thrust mechanism.
- Clearly marked sizes, mandrel and thrust assembly are marked with tube sizes so that the tool can be quickly matched to the task.
- Large selection of sizes – specific pullers are made for tube outside diameter of 1/4", 3/8", 1/2", 5/8", 3/4", 7/8" and 1" and in this way cover the majority of common applications.

Tube Size				Tube Puller Complete		Spare Mandrel	
Outside Diameter	Gauge	Wall Thickness	Inside Diameter	Part Number	Stock Number	Part Number	Stock Number
mm		mm	mm				
6.35	18	1.24	3.86	JSP-250-18	5520136	JSP-1/4-18	2989364
9.52	16	1.65	6.22	JSP-375-16	5520914	JSP-3/8-16	2991563
9.52	18	1.24	7.04	JSP-375-18	5520030	JSP-3/8-18	2989016
9.52	20	0.88	7.75	JSP-375-20	5519932	JSP-3/8-20	2988750
12.7	14	2.11	8.48	JSP-500-14	5519689	JSP-1/2-14	2987297
12.7	16	1.65	9.40	JSP-500-16	5519690	JSP-1/2-16	2986892
12.7	18	1.24	10.21	JSP-500-18	5519070	JSP-1/2-18	2986893
12.7	20	0.88	10.92	JSP-500-20	5519691	JSP-1/2-20	2987298
15.88	14	2.10	11.66	JSP-625-14	5519692	JSP-5/8-14	2986894
15.88	16	1.65	12.57	JSP-625-16	5519693	JSP-5/8-16	2986895
15.88	18	1.24	13.39	JSP-625-18	5518868	JSP-5/8-18	2986771
15.88	20	0.88	14.10	JSP-625-20	5519694	JSP-5/8-20	2987182
19.05	14	2.10	14.86	JSP-750-14	5519695	JSP-3/4-14	2986896
19.05	16	1.65	15.75	JSP-750-16	5519696	JSP-3/4-16	2986897
19.05	18	1.24	16.56	JSP-750-18	5518804	JSP-3/4-18	2986364
19.05	20	0.88	17.27	JSP-750-20	5519697	JSP-3/4-20	2986769
22.22	14	2.10	18.01	JSP-875-14	5519698	JSP-7/8-14	2986898
22.22	16	1.65	18.92	JSP-875-16	5519699	JSP-7/8-16	2986899
22.22	18	1.24	19.74	JSP-875-18	5519071	JSP-7/8-18	2986900
22.22	20	0.88	20.45	JSP-875-20	5518700	JSP-7/8-20	2987534
25.4	14	2.10	21.18	JSP-1000-14	5519701	JSP-1-14	2986901
25.4	16	1.65	22.10	JSP-1000-16	5519702	JSP-1-16	2986902
25.4	18	1.24	22.91	JSP-1000-18	5519072	JSP-1-18	2986903
25.4	20	0.88	23.62	JSP-1000-20	5519703	JSP-1-20	2987209

Some parts are only available on quotation.

Other sizes are available. Contact your distributor for further details.

## Quality Fastening Tools

For more than half a century Apex has had a leading position among the suppliers of industrial fastening tools. A large number of sockets, socket combinations and other attachments developed by Apex are now industry standards. Quality, service and the selection from Apex offer you unmatched benefits.

### More Quality for Your Money

Apex quality starts with the selection of the raw materials. Only carefully selected high grade tool steel is used for Apex fastening tools. Each part is manufactured from bar material to the most demanding accuracy standards. You always have play-free, secure seating – seating that is not possible with pressed parts. Finally, each Apex fastening tool is hardened using our exclusive heat treatment process. During this step the level of hardness is selected to suit the application.

### Quick Delivery

As stock items, all standard parts in the Apex catalogue are available for immediate delivery. If you should need assistance with your order, your Apex distributor will be pleased to answer all your questions.

### Special Orders

Apex offers the largest available selection of fastening tools, from bits through sockets and universal joints to extensions, adapters and screwdrivers. Should you have a special application, please contact your Apex distributor. Maybe we have what you need in stock. Or we will develop and produce your special fastening tools for almost every application.

### Ordering Information

Apex products are marketed worldwide. For a catalogue of our range of Apex quality fastening tools or the address of your nearest Apex distributor, please visit our website [www.apexpowertools.eu](http://www.apexpowertools.eu).



Registered trademarks: HI-TORQUE, Voi-Shan; TORX, Camcar Division of Textron; ACR, POZIDRIV, TORQ-SET and TRI-WING, Phillips International Co.; SUPADRIV, EIS (Fasteners) LTD.; SEL-O-FIT, FLIP-TIP, and Apex, Apex Tool Group, LLC.

## Bits for all Screw Types



For all these fastening types:

- Phillips®
- Slotted
- Torx®
- Torx Plus®
- Torx® Tamper Resistant
- Torx Plus® Tamper Resistant
- Pozidriv®
- Sel-o-fit®
- Quadrex®
- Frearson
- B.N.A.E.
- Socket head
- Square recess
- Torq-Set®
- MorTorq®
- Tri-Wing®
- Hi-Torque®
- Triple square

### Insert Bits (1/4" Hex) - metric

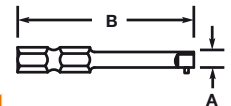
For internal hexagon and adjusting screws



Part Number	Size mm	Overall Length
		mm
185-1.5mm	1.5 mm	25
185-2mm	2 mm	25
185-2.5mm	2.5 mm	25
185-3mm	3 mm	25
185-4mm	4 mm	33
185-5mm	5 mm	33
185-6mm	6 mm	33
185-7mm	7 mm	32
185-8mm	8 mm	32
185-9mm	9 mm	32
185-10mm	10 mm	32

### Square Drive Adapter (1/4" hex)

For use with quick-change chuck and guide sleeve models, as far as not otherwise stated.



Model Number	"A" Sq. Dr.	"B"	Sleeve Number
		mm	
EX250-2	1/4	50.8	---
EX250-3	1/4	76.2	847295*
EX250-4	1/4	101.6	---
EX250-6	1/4	152.4	---
EX370	3/8	41.3	---
EX370-3	3/8	76.2	847295*
EX500-2	1/2	50.8	---
EX500-3	1/2	76.2	---

\*Necessary for guide sleeve models.

### Hex Extensions



Model Number	Hex (in.)	Type of Locking	Overall Length
			mm
Hex drive with 1/2" male square drive			
EX-501-3	7/16	Pin	76
EX-501-4	7/16	Pin	102
EX-501-6	7/16	Pin	152
Hex drive with 3/8" male square drive			
EX-371-3	7/16	Pin	76
EX-371-4	7/16	Pin	102
EX-371-6	7/16	Pin	152

### Hex Power Drive



Part Number	Part Number Magnetic	Size	Overall Length	Socket Diameter
		mm		
6N-08-8M-3	M6N-08-8M-3	8	76	12.7
6N-08-8M-4	M6N-08-8M-4*	8	102	12.7
6N-08-8M-6	M6N-08-8M-6	8	152	12.7
6N-08-10M-3*	M6N-08-10M-3*	10	76	14.3
6N-08-10M-4*	M6N-08-10M-4*	10	102	14.3
6N-08-10M-6	M6N-08-10M-6*	10	76	14.3
6N-08-12M-3	M6N-08-12M-3	12	76	19.0
6N-08-12M-4	M6N-08-12M-4	12	102	19.0
6N-08-12M-6	M6N-08-12M-6*	12	152	19.0

\*Marks a standard part that is either available in stock or that has a delivery time of approx. 4 - 6 weeks at the most. There is no minimum order quantity for these parts.

## Phillips Bits



### 1/4" Hex Insert Bits



Part Number	Size	Overall Length		
		inch	mm	
440-1X	1	1	25	
440-115X	1	1 1/2	38	
440-12X	1	2	51	
440-125X	1	2 1/2	64	
440-13X	1	3	76	
440-2X	2	1	25	
440-2I	2	1	25	
440-215X	2	1 1/2	38	
440-22X	2	2	51	
440-225X	2	2 1/2	64	
440-23X	2	3	76	
440-24X	2	4	101	
440-255X	2	5 1/2	140	
440-26X	2	6	152	
440-27X*	2	1	25	For screws not recessed enough
440-3X	3	1	25	
440-3I	3	1	25	
440-3125X	3	1 1/4	32	
440-3BNX	3	1 1/4	32	Reinforced version
440-32X	3	2	51	
440-325X	3	2 1/2	64	
440-33X	3	3	76	
440-34X	3	4	101	
440-4X	4	1 5/16	33	



### 1/4" Hex Power Drive



Part Number	Size	Overall Length		Shank Diameter		Turned Length	
		inch	mm	inch	mm	inch	mm
4910X	0	1 15/16	49	1/8	3.2	1 1/4	32
4910-AX	0	2 3/4	70	1/8	3.2	2	51
4910-BX	0	3 1/2	89	1/8	3.2	2 3/4	70
4910-CX	0	6	152	1/8	3.2	2	51
491X	1	1 15/16	49	3/16	4.8	1 1/4	32
491-AX	1	2 3/4	70	3/16	4.8	2	51
491-BX	1	3 1/2	89	3/16	4.8	2 3/4	70
491-CX	1	6	152	3/16	4.8	2	51
491-CCX	1	6	152	3/16	4.8	5 1/4	133
492X	2	1 15/16	49	1/4	6.4	1 1/4	32
492I	2	1 15/16	49	1/4	6.4	1 1/4	32
492-AX	2	2 3/4	70	1/4	6.4	2	51
492-AI	2	2 3/4	70	1/4	6.4	2	51
492-BX	2	3 1/2	89	1/4	6.4	2 3/4	70
492-BI	2	3 1/2	89	1/4	6.4	2 3/4	70
492-CX	2	6	152	1/4	6.4	2	51
492-CI	2	6	152	1/4	6.4	2	51
492-200MM	2	7 13/16	200	1/4	6.4	7	178
SD-2052-8	2	8	203	9/32	7.1	7	178
SD-2052-10	2	10	254	9/32	7.1	9	229
492-CCX	2	6	152	1/4	6.4	5 1/4	133
492-27X*	2	1 15/16	49	1/4	6.4	1 1/4	32
492-A-27X*	2	2 3/4	70	1/4	6.4	2	51
492-B-27X*	2	3 1/2	89	1/4	6.4	2 3/4	70
492-C-27X*	2	6	152	1/4	6.4	2	51
492-CC-27X*	2	6	152	1/4	6.4	5 1/4	133
493X	3	1 15/16	49	5/16	7.9	1	25
493-AX	3	2 3/4	70	5/16	7.9	1 3/4	44
493-BX	3	3 1/2	89	5/16	7.9	2 1/2	64
493-CX	3	6	152	5/16	7.9	5	127
4930X	3	1 15/16	49	1/4	6.4	1 1/4	32
4930-AX	3	2 3/4	70	1/4	6.4	2	51
4930-BX	3	3 1/2	89	1/4	6.4	2 3/4	70
4930-CX	3	6	152	1/4	6.4	2	51
4930-CCX	3	6	152	1/4	6.4	5 1/4	133
494X	4	1 15/16	49	3/8	9.5	1	25

## Slotted Bits



### 1/4" Hex Insert Bits



Part Number	Screw Size	Total Length		Blade Thickness		Blade Width	
		inch	mm	inch	mm	inch	mm
445-1X	4F-5R	1	25	.034	.86	3/16	4.8
445-2X	6F-8R	1	25	.040	1.02	7/32	5.6
445-3X	8F-10R	1	25	.042	1.07	1/4	6.4
445-4X	10F-12R	1	25	.046	1.17	9/32	7.1
445-1-15X	4F-5R	1 1/2	38	.034	.86	3/16	4.8
445-2-15X	6F-8R	1 1/2	38	.040	1.02	7/32	5.6
445-3-15X	8F-10R	1 1/2	38	.042	1.07	1/4	6.4
445-4-15X	10F-12R	1 1/2	38	.046	1.17	9/32	7.1
445-5X	12F-14R	1 1/2	38	.050	1.27	5/16	7.9
445-6X	14F-16R	1 1/2	38	.055	1.40	23/64	9.1

## Slotted Power Bits with Guide Sleeves



1/4" Hex Power Drive



Part No. Complete	Part Number	Screw Size	Length		Blade Thickness		Blade Width/ Shank Dia.	
			inch	mm	inch	mm	inch	mm
L-320X	320-LX	5F-6R	3 3/4	95	.036	.91	.193	4.90
M-320X	320-MX	6F-8R	3 3/4	95	.038	.97	.241	6.12
P-320X	320-PX	8F-10R	3 3/4	95	.042	1.07	.290	7.37
R-320X	320-RX	10F-12R	3 3/4	95	.046	1.17	.350	8.89
S-320X	320-SX	12F-14R	3 7/8	98	.050	1.27	.395	10.03
T-320X	320-TX	14F-16R	4 1/8	105	.055	1.40	.457	11.61

## Torx® Bits



1/4" Hex Power Drive

Part Number	Screw-driver Size	A	Shank Diameter		Overall Length	
			inch	mm	inch	mm
49-TX-05	T-5	.055	.119	3.0	1 15/16	49
49-A-TX-05	T-5	.055	.119	3.0	2 3/4	70
49-B-TX-05	T-5	.055	.119	3.0	3 1/2	89
49-TX-06	T-6	.065	.119	3.0	1 15/16	49
49-A-TX-06	T-6	.065	.119	3.0	2 3/4	70
49-TX-07	T-7	.077	.119	3.0	1 15/16	49
49-A-TX-07	T-7	.077	.119	3.0	2 3/4	70
49-B-TX-07	T-7	.077	.119	3.0	3 1/2	89
49-C-TX-07	T-7	.077	.119	3.0	6	152
49-TX-08	T-8	.090	.119	3.0	1 15/16	49
49-A-TX-08	T-8	.090	.119	3.0	2 3/4	70
49-B-TX-08	T-8	.090	.119	3.0	3 1/2	89
49-C-TX-08	T-8	.090	.119	3.0	6	152
49-TX-09	T-9	.097	.119	3.0	1 15/16	49
49-A-TX-09	T-9	.097	.119	3.0	2 3/4	70
49-B-TX-09	T-9	.097	.119	3.0	3 1/2	89
49-C-TX-09	T-9	.097	.119	3.0	6	152
49-TX-10	T-10	.107	.150	3.8	1 15/16	49
49-A-TX-10	T-10	.107	.150	3.8	2 3/4	70
SD-4693	T-10	.107	.150	3.8	3	75
49-B-TX-10	T-10	.107	.150	3.8	3 1/2	89
49-C-TX-10	T-10	.107	.150	3.8	6	152
49-TX-15	T-15	.128	.150	3.8	1 15/16	49
49-A-TX-15	T-15	.128	.150	3.8	2 3/4	70
49-B-TX-15	T-15	.128	.150	3.8	3 1/2	89
49-C-TX-15	T-15	.128	.150	3.8	6	152
49-TX-20	T-20	.151	.171	4.3	1 15/16	49
49-A-TX-20	T-20	.151	.171	4.3	2 3/4	70
49-B-TX-20	T-20	.151	.171	4.3	3 1/2	89
49-TX-20-5	T-20	.151	.171	4.3	5	127
49-C-TX-20	T-20	.151	.171	4.3	6	152
49-TX-25	T-25	.173	.193	4.9	1 15/16	49
49-A-TX-25	T-25	.173	.193	4.9	2 3/4	70
49-B-TX-25	T-25	.173	.193	4.9	3 1/2	89
49-C-TX-25	T-25	.173	.193	4.9	6	152
49-TX-27	T-27	.195	.215	5.5	1 15/16	49
49-A-TX-27	T-27	.195	.215	5.5	2 3/4	70
49-B-TX-27	T-27	.195	.215	5.5	3 1/2	89
49-C-TX-27	T-27	.195	.215	5.5	6	152
49-TX-30	T-30	.216	.236	6.0	1 15/16	49
49-A-TX-30	T-30	.216	.236	6.0	2 3/4	70
49-B-TX-30	T-30	.216	.236	6.0	3 1/2	89
49-C-TX-30	T-30	.216	.236	6.0	6	152
49-TX-40	T-40	.260	.309	7.8	1 15/16	49
49-A-TX-40	T-40	.260	.309	7.8	2 3/4	70
49-B-TX-40	T-40	.260	.309	7.8	3 1/2	89
49-C-TX-40	T-40	.260	.309	7.8	6	152

Torx® and Torxalign® are registered trademarks of the Camcar Division of Textron.

## Triple Square Bits



1/4" Hex Power Drive



Part Number	Size	Overall Length	
		inch	mm
49-TSQ-4M	4mm	2	50
49-TSQ-5M	5mm	2	50
49-TSQ-6M	6mm	2	50
49-TSQ-8M	8mm	2	50
49-TSQ-10M	10mm	2	50
49-TSQ-12M	12mm	2	50

## Tri-Wing®



1/4" Hex Insert Bits



Part Number	Size	Size	Size	Overall Length	
				Tension Head	Shear Head
TWD-0	0	0-80	-	1	25
TWD-1	1	2-56	4-40	1	25
TWD-2	2	4-40	6-32	1	25
TWD-3	3	6-32	8-32	1	25
TWD-4	4	8-32	10-32	1	25
TWD-5	5	10-32	1/4-28	1	25
TWD-6	6	1/4	5/16	1	25
TWD-7	7	5/16	3/8	1	25

# APEX® $\mu$ -Guard™

## High Quality Product Protecting Fastening Tools are based on First Class Sockets.

Apex  $\mu$ -Guard™ forms a protective barrier between the genuine Apex fastening tools and the surface of your product. The free-spinning patented sleeve design offers maximum protection for polished and delicate surfaces.

Apex  $\mu$ -Guard™ comprise thermoplastic urethane (TPU elastomer) that softly captures side impacts and prevents expensive damage. They feature the lowest sustained coefficients of friction and maximum tool efficiency. The sleeve is not removable and prevents unauthorised removal.

With the Apex  $\mu$ -Guard™ system you receive the proven accuracy of fit and performance of Apex tools and, in addition, the best protection for your product against manufacturing-related damage available on the market. Apex  $\mu$ -Guard™ is your protection against damage due to friction caused by rotation.



Apex  $\mu$ -Guard™ – product protection.

### Prevents Damage due to Side Impacts



### Free Spinning Design



### Practically Damage-Free



## $\mu$ -Guard Sockets

(includes socket and sleeve)



Part number	Socket	Drive End			Socket Length	Fastener End			Assembly Features*
		Size	Type	Sex		Size	Type	Sex	
UG-10MM21	10MM21	1/4	Square	F	Standard	10 mm	Hex	F	FS
UG-M-10MM21	M-10MM21	1/4	Square	F	Standard	10 mm	Hex	F	FS, M
UG-MB-10MM21	MB-10MM21	1/4	Square	F	Standard	10 mm	Hex	F	FS, M, B
UG-10MM13	10MM13	3/8	Square	F	Standard	10 mm	Hex	F	FS
UG-M-10MM13	M-10MM13	3/8	Square	F	Standard	10 mm	Hex	F	FS, M
UG-10MM23	10MM23	3/8	Square	F	Long	10 mm	Hex	F	FS
UG-M-10MM23	M-10MM23	3/8	Square	F	Long	10 mm	Hex	F	FS, M
UG-MB-10MM23	MB-10MM23	3/8	Square	F	Long	10 mm	Hex	F	FS, M, B
UG-13MM23	13MM23	3/8	Square	F	Long	13 mm	Hex	F	FS
UG-M-13MM23	M-13MM23	3/8	Square	F	Long	13 mm	Hex	F	FS, M
UG-MB-13MM23	MB-13MM23	3/8	Square	F	Long	13 mm	Hex	F	FS, M, B
UG-13MM25	13MM25	1/2	Square	F	Long	13 mm	Hex	F	FS
UG-SF-13MM25	SF-13MM25	1/2	Square	F	Long	13 mm	Hex	F	FS, SF
UG-15MM25	15MM25	1/2	Square	F	Long	15 mm	Hex	F	FS
UG-SF-15MM25	SF-15MM25	1/2	Square	F	Long	15 mm	Hex	F	FS, SF
UG-18MM25	18MM25	1/2	Square	F	Long	18 mm	Hex	F	FS
UG-SF-18MM25	SF-18MM25	1/2	Square	F	Long	18 mm	Hex	F	FS, SF



## $\mu$ -Guard Extensions

(includes extension and sleeve)



Model Number	Extension	Drive End			Extension Length	Fastening End			Features*
		Size	Type	Sex		Size	Type	Sex	
UG-EX-250-2	EX-250-2	1/4	Hex	M	2	1/4	Square	M	FS
UG-EX-250-4	EX-250-4	1/4	Hex	M	4	1/4	Square	M	FS
UG-EX-250-6	EX-250-6	1/4	Hex	M	6	1/4	Square	M	FS
UG-EX-370-2	EX-370-2	1/4	Hex	M	2	3/8	Square	M	FS
UG-EX-370-4	EX-370-4	1/4	Hex	M	4	3/8	Square	M	FS
UG-EX-370-6	EX-370-6	1/4	Hex	M	6	3/8	Square	M	FS
UG-EX-376-3	EX-376-3	3/8	Square	F	3	3/8	Square	M	FS
UG-EX-376-6	EX-376-6	3/8	Square	F	6	3/8	Square	M	FS
UG-EX-376-12	EX-376-12	3/8	Square	F	12	3/8	Square	M	FS
UG-EX-508-4	EX-508-4	1/2	Square	F	4	1/2	Square	M	FS
UG-EX-508-8	EX-508-8	1/2	Square	F	8	1/2	Square	M	FS
UG-EX-508-12	EX-508-12	1/2	Square	F	12	1/2	Square	M	FS



## $\mu$ -Guard Bit Holders

(includes bit holder and sleeve)



Model Number	Bit Holder	Drive End			Bit Holder Length	Fastening End			Features*
		Size	Type	Sex		Size	Type	Sex	
UG-M-490	M-490	1/4	Hex	M	2 31/32	1/4	Hex	F	FS, M, ET
UG-M-490-2	M-490-2	1/4	Hex	M	2	1/4	Hex	F	FS, M, ET
UG-838	838	3/8	Square	F	1 1/2	1/4	Hex	F	FS, ET
UG-M-838	M-838	3/8	Square	F	2 5/8	1/4	Hex	F	FS, M, ET
UG-835	835	3/8	Square	F	1 1/2	5/16	Hex	F	FS, ET
UG-M-835	M-835	3/8	Square	F	2 3/4	5/16	Hex	F	FS, M, ET
UG-855	855	1/2	Square	F	1 1/2	5/16	Hex	F	FS, ET
UG-M-855	M-855	1/2	Square	F	2 3/4	5/16	Hex	F	FS, M, ET
UG-QR-308	QR-308	3/8	Square	F	1 3/4	1/4	Hex	F	FS, QR
UG-QR-508	QR-508	1/2	Square	F	2 1/8	1/4	Hex	F	FS, QR
UG-QR-314	QR-314	3/8	Square	F	2	7/16	Hex	F	FS, QR
UG-QR-514	QR-514	1/2	Square	F	2 1/8	7/16	Hex	F	FS, QR



### \*Features

- FS** Free Spinning Tool rotates independent of sleeve.
- M** Magnetic Tool is equipped with magnet that keeps the fastener in position during tightening.
- B** Bolt Clearance Tool is sprung so that bolts or nuts can withdraw into the socket.
- SF** Surface Drive Tool has special hex shape so that bolts and nuts are easier to insert.
- ET** Extended Tip Sleeve protrudes beyond the end of the bit holder and protects most of the standard insert.\*\* The tip of the insert bit is free and in this way guarantees a better connection.

- QR** Quick Release Tool has a clamping device so that bits can be changed quickly and easily. The sleeve does not protrude beyond the end of the bit holder.

\*\*Bit holder sleeves can be used with 1 inch/25 mm or 1 1/4 inch/32 mm long inserts. Tips of the sleeve can be changed to suit the requirements or as required. Sleeves can be cut to the required length or heated and adapted to the shape of the bolt head.

**NOTES:** Lengths stated apply for core length without sleeves. If not otherwise stated, the sleeve can protrude up to 2 mm beyond the end of the tool.

**You cannot find the tool you need? Contact your Apex distributor, our customer service or refer to our web site [www.apexpowertools.eu](http://www.apexpowertools.eu). In the majority of cases we can supply the item required as a special item. If necessary our team of experts will develop and produce specials to suit your requirements.**

# Apex Sockets & Universal Joints



## ■ Sockets

Apex sockets are the industry standard (black version). Available as standard, long, extra long, thin wall in the versions hex, double hex, square, double square, surface drive, fast lead, with fixed or spring-mounted magnet, Torx and various special versions.



## ■ Magnetic Sockets



On tightening conventional or hardened bolts, magnetic sockets ease the access to inaccessible areas. They are often also used in automation. Magnetic sockets start with "M" before the item number.



## ■ Sockets with Spring-Mounted Magnet



"MB" (Magnetic Bolt) sockets for tightening nuts on threaded studs. On tightening the spring-mounted magnet is compressed by the threaded stud and permits entry into the socket. These tools are also available in the "SM" (Magnetic Sleeve) version. The advantage of these tools is that the spring-mounted magnet is replaced by a magnetic sleeve and the threaded stud can enter all the way to the square drive. Magnetic bolt and sleeve magnet sockets start with "MB" or "SM" respectively before the item number. Also available as surface drive on request.



## ■ Surface Drive Sockets



This profile was developed for usage on spindle-operated machines. The large intermediate spaces permit flowing, fast fitting to nuts and screws; during this process the flats on the nut / screw come into contact with the surfaces of the round profiles. In this way the corners of the nuts / screws move freely in the spaces between the round profiles. These tools are only of limited use for impact tools. Surface drive sockets start with "SF" before the item number. Magnetic version on request.



## ■ Fast Lead Sockets



The chamfered edges on this socket permit quick fitting; unlike SF sockets in this case a fixed connection is made already on fitting. This special feature permits quick insertion of a hex. Fitting is therefore possible without shutting down the source of power. Fast lead sockets start with "FL" before the item number. Magnetic version on request.



## ■ Special Sockets

We supply spline, thread cutter holder and other sockets for your special application on request.



## ■ Extensions, Adapters and Joints

Apex supplies the necessary accessories to adapt sockets to just about every tool and every application.

## Universal Joint Adapters,

with 3/8" square drive, extension, male square to female square



Standard version shown

Part Number Standard	Part Number Tension Type	Male Square	Female Square	Type of Locking	Largest Diameter
		in.	in.		mm
KAM-37-3*	KDM-37-3*	3/8	3/8	Pin	19
---	KDM-37-6*	3/8	3/8	Pin	19
---	KDM-37-B-3	3/8	3/8	Ball	19
KAM-38-6*	KDM-38-6*	3/8	3/8	Pin	22

Standard lengths are 3", 6", 9" and 12" (76, 152, 229 and 305 mm)

\*Marks a standard part that is either available in stock or that has a delivery time of approx. 4 - 6 weeks at the most. There is no minimum order quantity for these parts.

## Universal Joints\*\*, Metric

with 3/8" drive, extension, hex, standard and with tension type



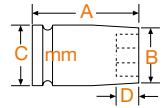
Part Number Standard	Part Number Tension Type	Across Flats Width	Shank Length	Socket Length	Diam. Socket	Diam. Socket End	Across Flats Depth
		mm					
KA-6-10m-4*	---	10	102	20.6	19.1	15.1	9.5
KA-6-10m-6*	KD-6-10m-6*	10	152	20.6	19.1	15.1	9.5
KA-6-10m-9*	KD-6-10m-9*	10	229	20.6	19.1	15.1	9.5
---	KD-6-10m-12*	10	305	20.6	19.1	15.1	9.5
---	KD-7-11m-6	11	152	23.8	22.2	15.9	10.3
KA-7-11m-12	KD-7-11m-12	11	305	23.8	22.2	15.9	10.3
KA-7-12m-4*	---	12	102	23.8	22.2	17.5	10.3
KA-7-12m-6*	KD-7-12m-6*	12	152	23.8	22.2	17.5	10.3
KA-7-12m-9*	KD-7-12m-9*	12	229	23.8	22.2	17.5	10.3
KA-7-12m-12	KD-7-12m-12*	12	305	23.8	22.2	17.5	10.3
KA-7-13m-3*	---	13	76	25.4	22.2	17.5	11.9
KA-7-13m-4*	---	13	102	25.4	22.2	17.5	11.9
KA-7-13m-6*	KD-7-13m-6*	13	152	25.4	22.2	17.5	11.9
KA-7-13m-9*	KD-7-13m-9*	13	229	25.4	22.2	17.5	11.9
KA-7-13m-12*	KD-7-13m-12*	13	305	25.4	22.2	17.5	11.9
KA-7-14m-6*	KD-7-14m-6*	14	152	27.0	22.2	19.1	13.5
---	KD-7-14m-9*	14	229	27.0	22.2	19.1	13.5
KA-8-15m-3*	---	15	76	28.6	25.4	19.8	14.3
---	KD-8-15m-6*	15	152	28.6	25.4	19.8	14.3
KA-8-15m-9*	KD-8-15m-9*	15	229	28.6	25.4	19.8	14.3
KA-8-15m-12*	KD-8-15m-12*	15	305	28.6	25.4	19.8	14.3

\*\*Universal joints are not allowed to be used with impact or pulsing tools. The maximum operating angle is 30°.

+ Thin wall.

## Sockets, Metric

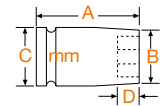
with 3/8" square drive, magnetic, thin wall, standard length



Part Number Fixed Magnet	Across Flats Width	Overall Length	Diameter Socket End	Diameter Drive End	Across Flats Depth
	mm				A
M-8mm43*	8	31.7	12.7	19.1	4.8
M-10mm43*	10	31.7	15.1	19.1	6.4
M-11mm43	11	38.1	15.9	19.1	7.2
M-12mm43*	12	38.1	17.5	19.1	7.2
M-13mm43*	13	38.1	19.1	19.1	8.7
M-14mm43	14	38.1	19.8	20.6	11.1
M-15mm43*	15	38.1	20.5	20.6	11.1

## Sockets, Metric

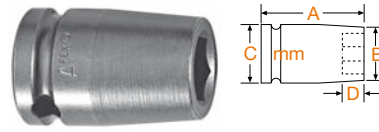
with 3/4" square drive, hex, standard length



Part Number Hex	Across Flats Width	Overall Length	Diameter Socket End	Diameter Drive End	Across Flats Depth
	mm				A
17mm17*	17	51	31.8	38.1	11.2
18mm17*	18	51	31.8	38.1	11.2
19mm17*	19	51	31.8	38.1	11.9
20mm17*	20	51	33.3	38.1	11.9
21mm17*	21	51	34.9	38.1	13.5
22mm17	22	51	38.1	38.1	14.3
22mm47*+	22	51	33.3	34.9	14.3
24mm17*	24	51	38.1	38.1	15.9
24mm47*+	24	51	34.9	34.9	15.9
26mm17*	26	51	41.3	41.3	15.9
27mm17	27	51	44.4	44.4	17.5
27mm47+	27	51	38.1	38.1	17.5
29mm17*	29	54	47.6	44.4	19.1
30mm17*	30	54	47.6	44.4	19.1
30mm47+	30	54	41.3	41.3	19.1
32mm17	32	54	50.8	44.4	20.6
32mm47+	32	54	44.4	44.4	20.6
33mm17*	33	54	50.8	44.4	20.6
36mm17	36	57	57.1	54.0	23.8
37mm17	37	57	57.1	54.0	23.8
41mm17	41	57	63.5	54.0	31.8
46mm17*	46	57	69.9	54.0	31.8

# Apex Sockets

**Sockets, Metric,** with 1/2" square drive, hex and double hex, standard length



Part Number Hex	Part No. Double Square	Across Flats Width	Overall Length	Diameter Socket End	Diameter Drive End	Across Flats Depth
		mm	A	B	C	D
10mm15*	10mm15-D*	10	38.1	16.7	23.8	6.4
11mm15*	11mm15-D	11	38.1	17.5	23.8	7.2
12mm15*	12mm15-D*	12	38.1	19.1	23.8	7.2
13mm15*	13mm15-D*	13	38.1	22.2	23.8	8.7
14mm15*	14mm15-D*	14	38.1	22.2	23.8	11.1
15mm15*	15mm15-D*	15	38.1	23.8	23.8	11.1
16mm15*	16mm15-D*	16	38.1	25.4	25.4	11.1
17mm15*	17mm15-D*	17	38.1	28.6	28.6	11.1
18mm15*	18mm15-D*	18	38.1	28.6	28.6	11.1
19mm15*	19mm15-D*	19	38.1	28.6	28.6	11.9
20mm15*	---	20	38.1	31.7	31.7	11.9
21mm15*	21mm15-D*	21	38.1	31.7	31.7	13.5
22mm15*	22mm15-D	22	38.1	33.3	33.3	14.3
23mm15*	23mm15-D	23	38.1	34.9	34.9	15.9
24mm15*	24mm15-D*	24	38.1	34.9	34.9	15.9
25mm15*	---	25	38.1	38.1	38.1	15.9
26mm15	26mm15-D	26	38.1	38.1	38.1	15.9
27mm15*	27mm15-D	27	41.3	41.3	41.3	17.5
28mm15	---	28	41.3	41.3	41.3	19.1
29mm15	29mm15-D	29	41.3	44.4	44.4	19.1
30mm15	30mm15-D	30	41.3	44.4	44.4	19.1
32mm15	32mm15-D	32	44.4	44.4	44.4	20.6
33mm15	---	33	44.4	47.6	47.6	20.6
34mm15	---	34	47.6	47.5	47.5	20.5
35mm15	---	35	47.6	50.8	50.8	20.6
36mm15	---	36	47.6	50.8	50.8	23.8

**Sockets, Metric,** with 1/4" square drive, standard length, hex and double hex



Part Number Hex	Part Number Double Hex	Across Flats Width	Overall Length	Diameter Socket End	Diameter Drive End	Across Flats Depth
		in.	A	B	C	D
3.5mm11	---	3.5	22.2	6.4	12.7	2.4
4mm11*	---	4	22.2	6.4	12.7	2.4
4.5mm11	---	4.5	22.2	7.9	12.7	2.4
5mm11*	---	5	22.2	8.7	12.7	3.9
5.5mm11*	---	5.5	22.2	9.5	12.7	3.9
6mm11*	6mm11-D	6	22.2	9.5	12.7	3.9
7mm11*	7mm11-D*	7	22.2	11.1	12.7	4.8
8mm11*	8mm11-D*	8	25.4	12.7	12.7	4.8
9mm11*	9mm11-D	9	25.4	14.3	14.3	4.8
10mm11*	10mm11-D*	10	25.4	15.9	15.9	6.4
OS-10mm11*	---	10	25.4	14.3	14.3	6.4
11mm11*	11mm11-D	11	25.4	15.9	15.9	7.2
12mm11*	12mm11-D	12	25.4	17.5	17.5	7.2
13mm11*	13mm11-D	13	25.4	19.1	19.1	8.7
14mm11*	14mm11-D	14	25.4	20.6	20.6	11.1
15mm11*	---	15	25.4	22.2	22.2	11.1
16mm11*	---	16	25.4	22.2	22.2	11.1