

**Recoules
Quackenbush®**

Cleco®

DOTCO®

APEX®

Assembly Solutions for the Aerospace Industry



Apex Tool Group, your Global Aerospace Partner

With sales of \$ 1.5 billion and its international scope, particularly through its 27 plants located on every continent, Apex Tool Group is one of the biggest professional manufacturers in the tooling world.

Apex Tool Group has a track record of providing tools to the global aerospace market that dates back to the 1940s. Many Apex Tool Group innovations from brands like Cleco®, Recoules Quackenbush®, Apex and Dotco® are built specifically with the stringent standards of the aerospace technician in mind. They improve productivity and ensure strength and precision – attributes critical to the assembly process, where quality control technicians spend a great deal of their time on inspection.

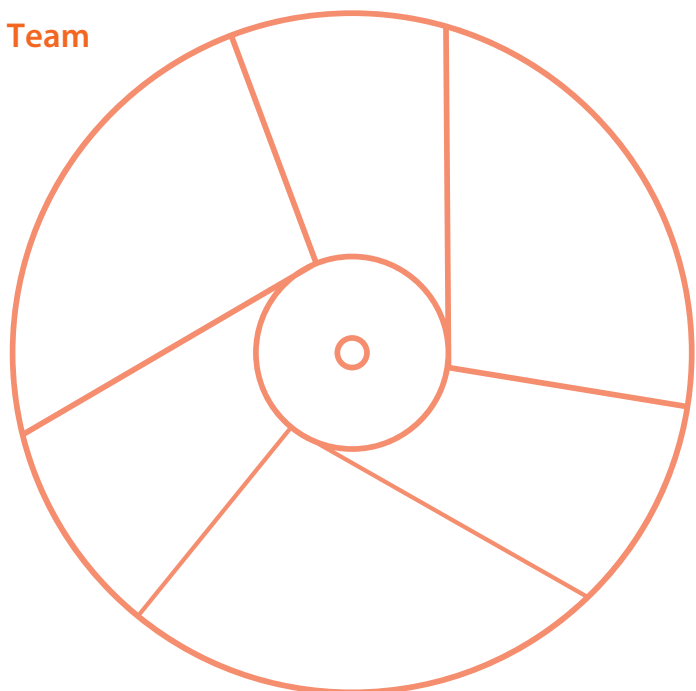
In partnership with the world's leading aircraft manufacturers, our drilling lines, screwing, riveting and material removal, constantly evolving to more productivity, more precision, more security, more traceability, more connectivity.

Apex Tool Group also offers a unique competence in combining "drilling machine & cutting tools". Beyond their high accuracy and quality our tools (PCD, carbide, HSS) are associated with our drilling machines, boring, countersink, to answer to the highest levels of quality and productivity.

Our cutting tools can also benefit from a sharpening service.

You will discover in this catalog most of our range and its latest innovations: you can also download it from our website www.apextoolgroup.eu

The Apex Tool Group Global Aerospace Team





Certificat

Certificate

N° 1994/2132.5

AFNOR Certification certifie que le système de management mis en place par :
AFNOR Certification certifies that the management system implemented by:

APEX TOOL GROUP SNC

pour les activités suivantes :
for the following activities:

**CONCEPTION, USINAGE ET MONTAGE MECANQUES, FABRICATION ET
COMMERCIALISATION D'OUTILLAGES PNEUMATIQUES ET HYDRAULIQUES, OUTILS
COUPANTS.**

**DESIGN, MECHANICAL MACHINING AND ASSEMBLY, MANUFACTURING, MARKETING AND
SALE OF HYDRAULIC AND PNEUMATIC TOOLING, CUTTING TOOLS.**

a été évalué et jugé conforme aux exigences requises par :
has been assessed and found to meet the requirements of:

ISO 9001 : 2008

et est déployé sur les sites suivants :
and is developed on the following locations:

**APEX TOOL GROUP SNC 25, avenue Maurice Chevalier ZI BP 28 ZI FR-77831 OZOIR LA FERRIERE CEDEX
APEX TOOL GROUP SNC 76, rue François de Tesson FR-77831 OZOIR LA FERRIERE CEDEX**

Ce certificat est valable à compter du (année/mois/jour)
This certificate is valid from (year/month/day)

2013-05-28

Jusqu'au
until

2016-05-28

**Organisme certificateur / Certification body : AFNOR Certification
11, rue Francis de Pressensé 93571 La Plaine Saint-Denis Cedex**

Accréditation COFRAC n°4-0001, Certification de Systèmes de Management, Portée disponible sur www.cofrac.fr.
COFRAC accreditation n°4-0001, Management Systems Certification, Scope available on www.cofrac.fr
AFAQ est une marque déposée. *AFAQ is a registered trademark*



AFNOR is a full member of the IONet network / AFNOR est membre à part entière du réseau IONet

Table of Contents

Microstop Cages for Countersinking, Drilling & Reaming

A

ADE Machines

B

Cutting Tools

C

Special Cutting Tools

D

Riveting

E

**Dotco Drills + Adaptators & Flats Offset
Angle Drill**

F

Pneumatic Screwdrivers

G

Apex Sockets and Bits

H

Microstop Cages for Countersinking, Drilling & Reaming



A

Microstop Cage For Drilling, Reaming and Countersinking

RB 156



ADVANTAGES

- Different mounting bases available.
- Reduced dimensions for tight access areas.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- Cemented, hardened and ground chrome-nickel steel spindle mounted on a self lubricating bronze body and a thrust bearing.
- Centring-cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

RB 156

Using cutters of .394" dia, M 6 X 1 thread



		Microstop Cage Assembly Code			
		RB 156	10000010	10000010W	10000100
Basic Drill Cage		●	●	●	●
Tapped Mounting Base	90815170	●			
Tapped Mounting Base Large Window	90815170W		●		
Offset Mounting Base	90815175			●	
Offset Mounting Base Large Window	90815175W				●
Nylon Nose Piece	90825005	●	●		

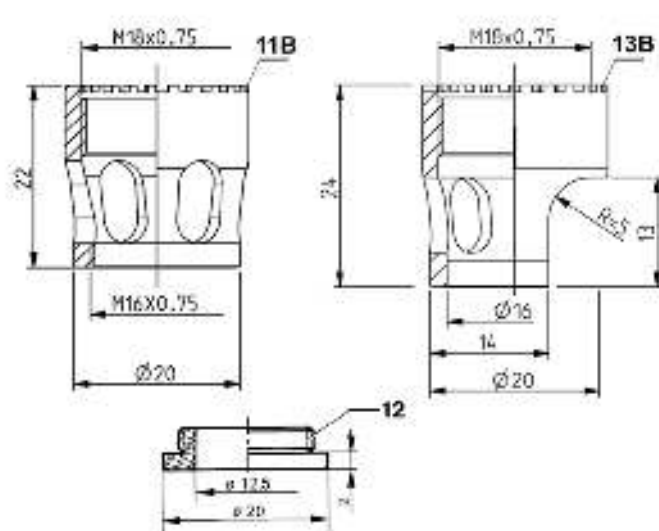
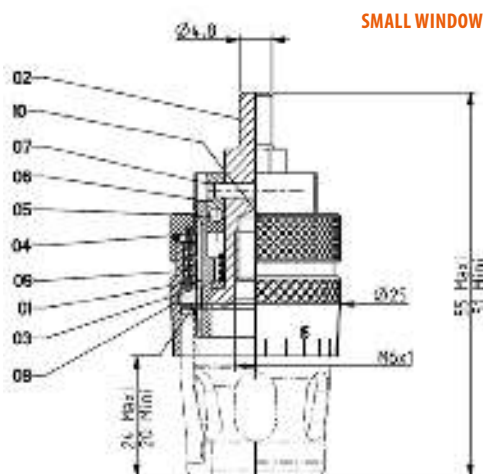
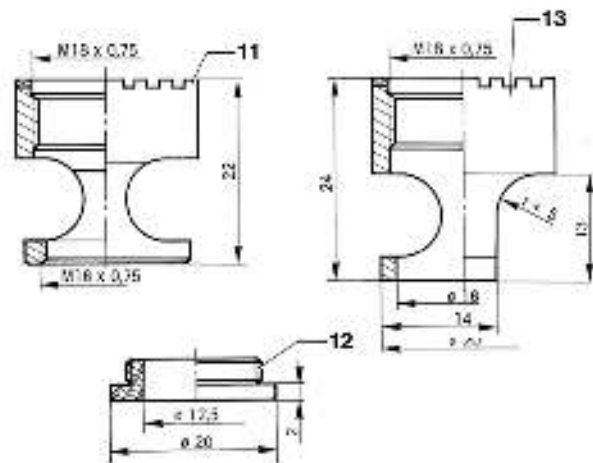
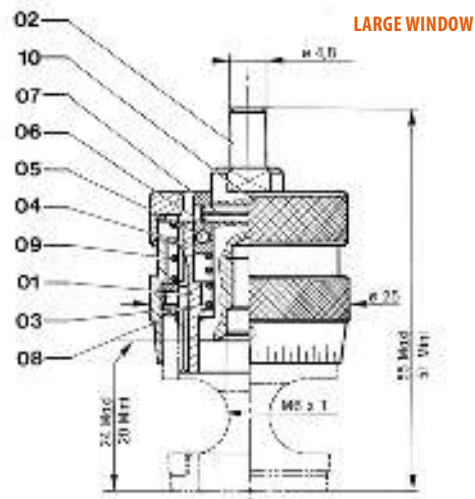
Microstop Cage For Drilling, Reaming and Countersinking

RB 156

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505005	1	1	Body
90025005	2	1	Spindle
93430040	3	1	Spring
90280005	4	1	Thrust bearing
90245100	5	18	Ball 2 mm dia
93440020	6	1	Lock washer
91218110	7	1	Pin
94215005	8	1	Vernier assembly

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
93430035	9	1	Spring
90495005	10	1	Lock nut
90815170	11B	1	Tapped Mounting Base
90815170W	11	1	Tapped Mounting Base Large Window
90825005	12	1	Nylon Nose Piece
90815175	13B	1	Offset Mounting Base
90815175W	13	1	Offset Mounting Base Large Window

A



TECHNICAL DATA

Shank: 0.188" dia - Ø 4.8 mm
Cutter thread: M 6 X 1
Stroke: 0.14" - 3.5 mm
Ext. Maxi: 1" dia - Ø 25 mm

Weight: 75 g
Overall length maxi: 2.16" - 55 mm
Overall length mini: 2" - 51 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools (refer to chapter F).
- For cutter selection, (refer to chapter C).
- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.



Microstop Cage

For Drilling, Reaming and Countersinking

RB 206
RBI 206



RB 206
Using cutters of .394" dia, M 6 X 1 thread

RBI 206
Using cutters of .394" dia, 1/4" - 28 F thread



ADVANTAGES

- Different mounting bases available.
- Reduced dimensions for tight access areas.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- Cemented, hardened and ground chrome-nickel steel spindle mounted on a self lubricating bronze body and a thrust bearing.
- Centring-cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.



LARGE WINDOW

SMALL WINDOW



(Pictures are not contractual)

		Microstop Cage Assembly Code										
		RB 206	10005000W	10005000	10005200W	10005200	10005305W	10005305	10005001W	10005001	10005306W	10005306
		RBI 206	10005050W	10005050	10005250W	10005250	10005355W	10005355	10005051W	10005051	10005356W	10005356
Basic Drill Cage			●	●	●	●	●	●	●	●	●	●
Mounting Base Flat Bearing Large Window	90815005W	●										
Mounting Base Flat Bearing	90815005				●							
Offset Mounting Base Large Window	90815015W			●								
Offset Mounting Base	90815015					●						
Tapped Mounting Base Large Window	90815020W						●					
Tapped Mounting Base	90815020							●				
Mounting Base Flat Bearing Large Window With Vacuum	90815003W								●			
Mounting Base Flat Bearing With Vacuum	90815003									●		
Tapped Mounting Base Large Window With Vacuum	90815018W										●	
Tapped Mounting Base With Vacuum	90815018											●
Nylon Nose Piece	90825005						●	●			●	●

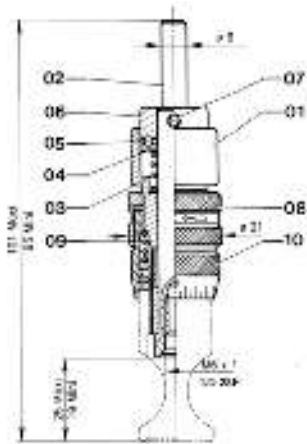
Microstop Cage For Drilling, Reaming and Countersinking

**RB 206
RBI 206**

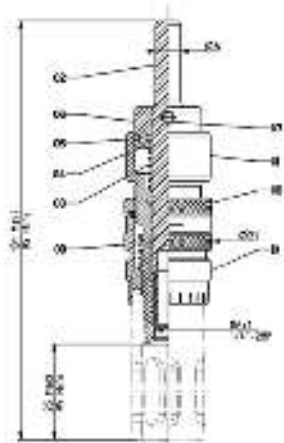
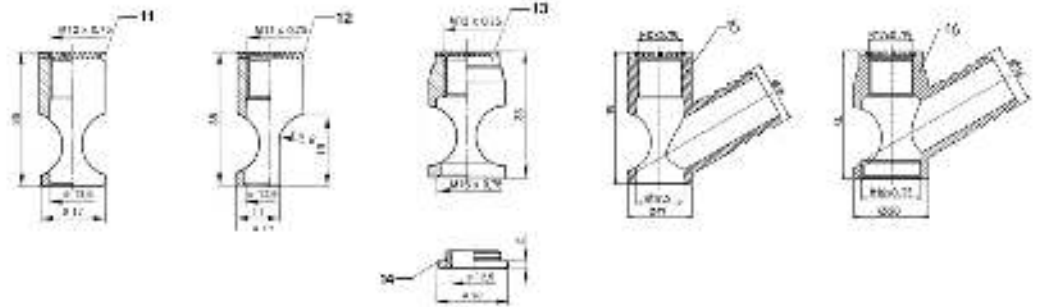
A

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505010	1	1	Body
90025015	2	1	RB 206 Spindle
90025016	2	1	RBI 206 Spindle
RC-93430005	3	1	Spring
90280010	4	1	Thrust bearing
90245100	5	18	Ball 2 mm dia
93440005	6	1	Lock washer
91218230	7	1	Pin
90495010	8	1	Lock nut assembly
93430045	9	1	Spring
94215010	10	1	Vernier assembly

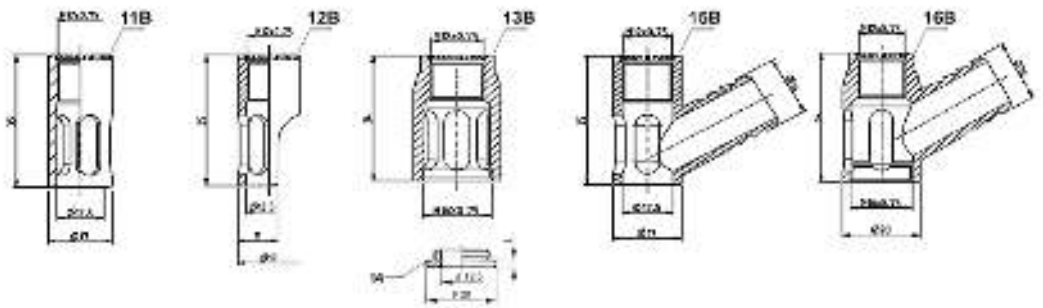
REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90815005W	11	1	Mounting Base Flat Bearing Large Window
90815005	11B	1	Mounting Base Flat Bearing
90815015W	12	1	Offset Mounting Base Large Window
90815015	12B	1	Offset Mounting Base
90815020W	13	1	Tapped Mounting Base Large Window
90815020	13B	1	Tapped Mounting Base
90825005	14	1	Nylon Nose Piece
90815003W	15	1	Mounting Base Flat Bearing Large Window With Vacuum
90815003	15B	1	Mounting Base Flat Bearing With Vacuum
90815018W	16	1	Tapped Mounting Base Large Window With Vacuum
90815018	16B	1	Tapped Mounting Base With Vacuum



LARGE WINDOW



SMALL WINDOW



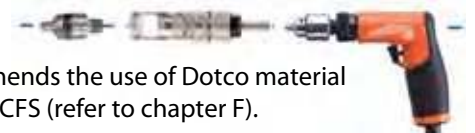
TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
 Cutter thread: RB 206: M 6 X 1
 RBI 206: 1/4" - 28
 Stroke: 0.236" - 6 mm
 Ext. Maxi: 0.826" dia - Ø 21 mm

Weight: 110 - 120 g
 Overall length maxi: 3.97" - 101 mm
 Overall length mini: 3.74" - 95 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).
- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.



Microstop Cage

For Drilling, Reaming and Countersinking

RB 256
RBI 256



RB 256
Using cutters of .394" dia, M 6 X 1 thread



RBI 256
Using cutters of .394" dia, 1/4" - 28 F thread



ADVANTAGES

- Different mounting bases available
- Reduced dimensions for tight access areas
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- Cemented, hardened and ground chrome-nickel steel spindle mounted on a self lubricating bronze body and a thrust bearing.
- Centring-cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.



		Microstop Cage Assembly Code										
		RB 256	10010010W	10010010	10010015W	10010015	10010001W	10010001	10010016W	10010016	10010205W	10010205
		RBI 256	10010110W	10010110	10010115W	10010115	10010111W	10010111	10010116W	10010116		
Basic Drill Cage			●	●	●	●	●	●	●	●	●	●
Tapped Mounting Base Large Window	90815060W		●		●							
Tapped Mounting Base	90815060			●		●						
Tapped Mounting Base Large Window With Vacuum	90815063W					●		●				
Tapped Mounting Base With Vacuum	90815063						●		●			
Threaded Mounting Base Large Window With Vacuum	90815098W									●		
Threaded Mounting Base With Vacuum	90815098										●	
Hard Chrome Steel Nose	90825015		●	●		●	●					
Nylon Nose Piece	90825020				●	●		●	●			
Nylon Nose Piece	90825085									●	●	

Microstop Cage

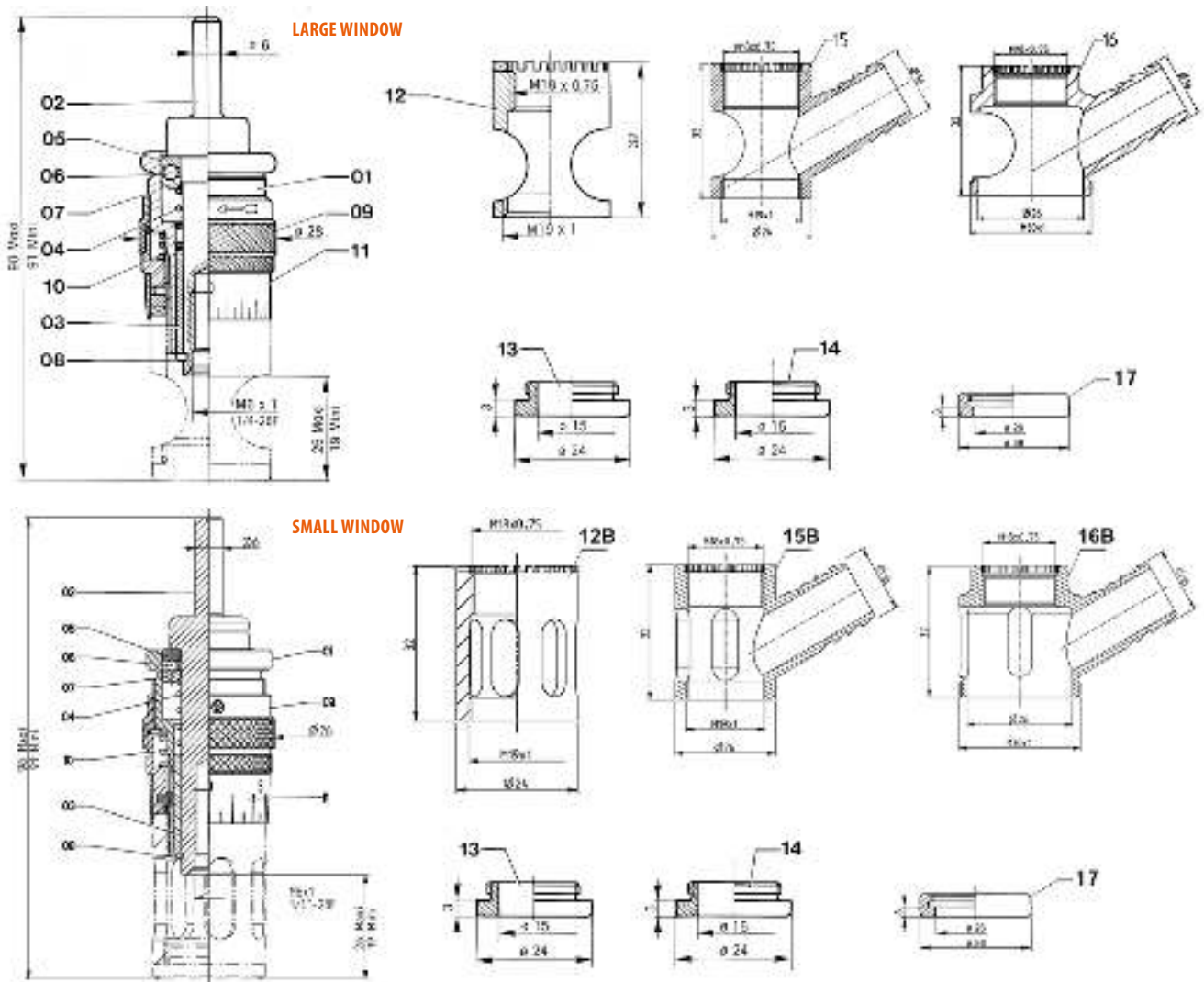
For Drilling, Reaming and Countersinking

**RB 256
RBI 256**

A

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505020	1	1	Body
90025025	2	1	RB 256 Spindle
90025095	2	1	RBI 256 Spindle
90205280	3	1	Bronze bushing
93430045	4	1	Spring
90280015	5	1	Thrust bearing
90245130	6	20	Ball 2,5 mm dia
90280020	7	1	Thrust bearing
90013029	8	1	Circlips
90495015	9	1	Lock nut
93430015	10	1	Spring

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
94215015	11	1	Vernier
90815060W	12	1	Tapped Mounting Base Large Window
90815060	12B	1	Tapped Mounting Base
90825015	13	1	Hard Chrome Steel Nose
90825020	14	1	Nylon Nose Piece
90815063W	15	1	Tapped Mounting Base Large Window With Vacuum
90815063	15B	1	Tapped Mounting Base With Vacuum
90815098W	16	1	Threaded Mounting Base Large Window With Vacuum
90815098	16B	1	Threaded Mounting Base With Vacuum
90825085	17	1	Nose Piece



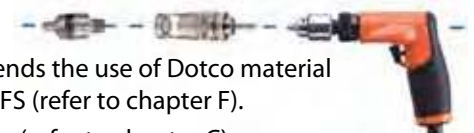
TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
 Cutter thread: RB 256: M 6 X 1
 RB 256I: 1/4" - 28
 Stroke: 0.3" - 7.5 mm
 Ext. Maxi: 1.1" dia - Ø 28 mm

Weight: 165 - 175 g
 Overall length maxi: 3.85" - 98 mm
 Overall length mini: 3.25" - 91 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Ball type Microstop Cage For Drilling, Reaming and Countersinking

RB 257



Using cutters of .394" dia, M 6 X 1 thread



ADVANTAGES

- Different mounting bases available.
- Reduced dimensions for tight access areas.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- High precision microstop cage, body in heat treated chrome steel, fully ground throughout. This ball mounted microstop cage includes two needle bearings for best utilisation.
- When using the RB 257, any misalignment of the microstop cage is corrected by the unique ball pivoting spindle. This assembly ensures perpendicularity throughout the operation at all time.
- Centring cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.



(Pictures are not contractual)

RB 257		Microstop Cage Assembly Code													
		10015010W	10015010	10015015W	10015015	RC-10015020W	RC-10015020	10015200W	10015200	10015001W	10015001	10015016W	10015016	10015021W	10015021
Basic Drill Cage		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Threaded + tapped base Large Window	90815075W	●		●		●									
Threaded + tapped base	90815075		●		●		●								
Threaded Mounting Base Large Window With Vacuum	90815078W									●		●		●	
Threaded Mounting Base Large Window With Vacuum	90815078										●		●		●
Offset Mounting Base Large Window + 3 nylon pins	90815085W							●							
Offset Mounting Base + 3 nylon pins	90815085								●						
Hard Chrome Steel Nose	90825015			●	●							●	●		
Nylon Nose Piece	90825020					●	●							●	●
Celeron Rotary Nose	90825210	●	●								●	●			

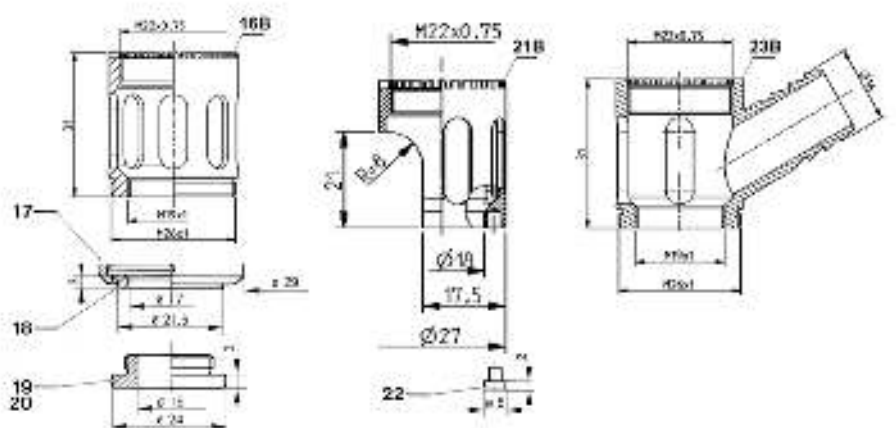
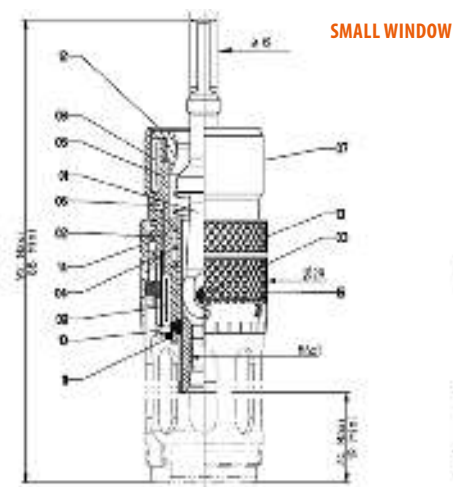
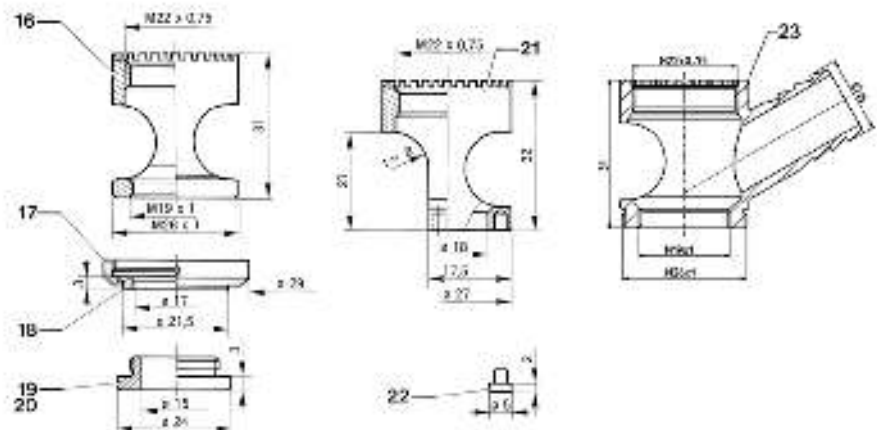
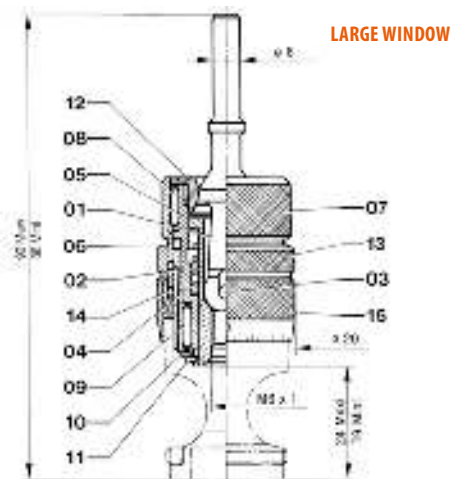
Ball type Microstop Cage For Drilling, Reaming and Countersinking

RB 257

A

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90025030	1	1	Spindle
91015005	2	1	Sleeve
91215010	3	1	Pin
93430045	4	1	Spring
90620005	5	1	Bush
90245100	6	31	Ball 2 mm dia
90505025	7	1	Body
90405295	8	1	Needle Cage
90405165	9	1	Needle Cage
RC-93440010	10	1	Washer
93605050	11	1	Circlips
90255005	12	1	Plug
90495020	13	1	Locknut

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
93430020	14	1	Spring
94215020	15	1	Vernier assembly
90815075W	16	1	Threaded + tapped base Large Window
90815075	16B	1	Threaded + tapped base
90225005	17	1	Ring
90825210	18	1	Rotary Nose Piece
90825015	19	1	Hard Chrome Steel Nose
90825020	20	1	Nylon Nose Piece
90815084W	21	1	Offset Mounting Base Large Window
90815084	21B	1	Offset Mounting Base
93045015	22	3	Nylon Pin
90815078W	23	1	Threaded Mounting Base Large Window With Vacuum
90815078	23B	1	Threaded Mounting Base



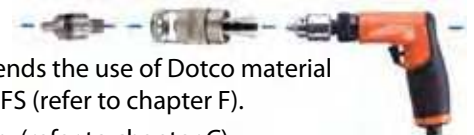
TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
 Cutter thread: M 6 X 1
 Stroke: 0.236" - 6 mm
 Ext. Maxi: 1.141" dia - Ø 29 mm

Weight: 155 - 165 g
 Overall length maxi: 3.62" - 92 mm
 Overall length mini: 3.46" - 88 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Ball type Microstop Cage For Drilling, Reaming and Countersinking

**RB 258
RBI 258**



RB 258 / RBI 258
Using cutters of .394" dia,
M6x1 thread



ADVANTAGES

- Different mounting bases available.
- Reduced dimensions for tight access areas.

PRECISE MANUFACTURE

- High precision microstop cage, body in heat treated chrome steel, fully ground throughout. This ball mounted microstop cage includes two needle bearings for best utilisation.
- When using the RB 258, any misalignment of the microstop cage is corrected by the unique ball pivoting spindle. This assembly ensures perpendicularity throughout the operation at all time.
- Centring cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.



Basic Drill Cage



Mounting Base
90815077W

Mounting Base
90815077



Nose Piece

		Microstop Cage Assembly Code	
		RB 258	RBI 258
		10015500PT	10015500W
		10015550	10015550W
Basic Drill Cage		●	●
Mounting Base Large Window	90815077 W		●
Mounting Base	90815077	●	
Nose Piece	90825035	●	●

(Pictures are not contractual)

Ball type Microstop Cage For Drilling, Reaming and Countersinking

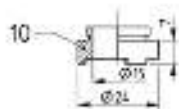
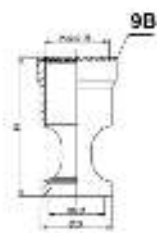
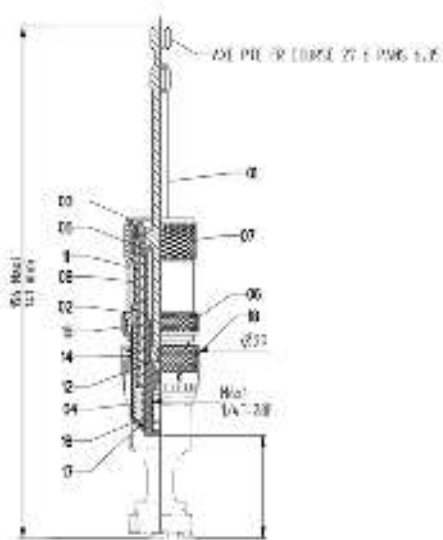
**RB 258
RBI 258**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90025033	1	1	Spindle
90245100	2	31	Ball 2 mm dia
90255005	3	1	Plug
90405165	4	1	Needle Cage
90405295	5	1	Needle Cage
90495020	6	1	Locknut
90505026	7	1	Body
90620024	8	1	Bush
90815077W	9	1	Mounting Base Large Window
90815077	9B	1	Mounting Base

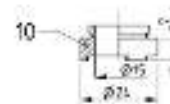
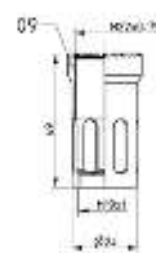
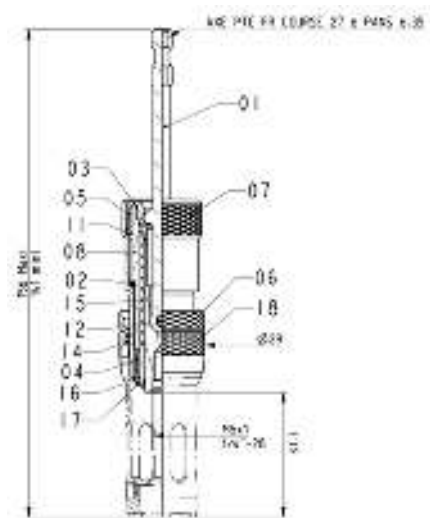
REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90825035	10	1	Nose Piece
91015011	11	1	RB 258 Sleeve
91015012	11	1	RBI 258 Sleeve
91216100	12	1	Pin
93045010	13	1	Pawn
93430020	14	1	Spring
93430046	15	1	Spring
93440010	16	1	Washer
93605050	17	1	Circlips
94215020	18	1	Vernier assembly

A

LARGE WINDOW



SMALL WINDOW



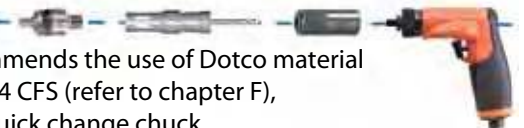
TECHNICAL DATA

Shank: 1/4" dia - Ø 6.35 mm
Cutter thread: RB 258: M 6 X 1
 RBI 258: 1/4" - 28F
Stroke: 1.06" - 27 mm
Ext. Maxi: 1.141" dia - Ø 29 mm

Weight: 250 g
Overall length maxi: 6.14" - 156 mm
Overall length mini: 5.55" - 141 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F), and the Apex quick change chuck
- For cutter selection (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Microstop Cage For Drilling, Reaming and Countersinking

RB 306



Using cutters
of M 8 X 1 thread



ADVANTAGES

- Different mounting bases available.
- This cage has been designed for use with cutters greater than 0.394" dia.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- Cemented, hardened and ground chrome-nickel steel spindle mounted on a self lubricating bronze body and a thrust bearing.
- Centring-cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.



(Pictures are not contractual)

RB 306		Microstop Cage Assembly Code Large Window								
		RC-10025010W	RC-10025015W	10025105W	10025110W	10025001W	10025016W	10025111W	10025116W	10025117W
Basic Drill Cage		●	●	●	●	●	●	●	●	●
Threaded Mounting Base Large Window	90815090W	●	●							
Threaded Mounting Base Large Window With Vacuum	90815093W					●	●			
Threaded Mounting Base Large Window	90815095W			●	●					
Threaded Mounting Base Large Window With Vacuum	90815098W							●	●	●
Hard Chrome Steel Nose	90825050	●				●				
Nylon Nose Piece	90825055		●				●			
Hard Chrome Steel Nose	90825080			●						●
Nylon Nose Piece	90825085				●			●		
Rotary Nose Piece	90825090								●	

Microstop Cage For Drilling, Reaming and Countersinking

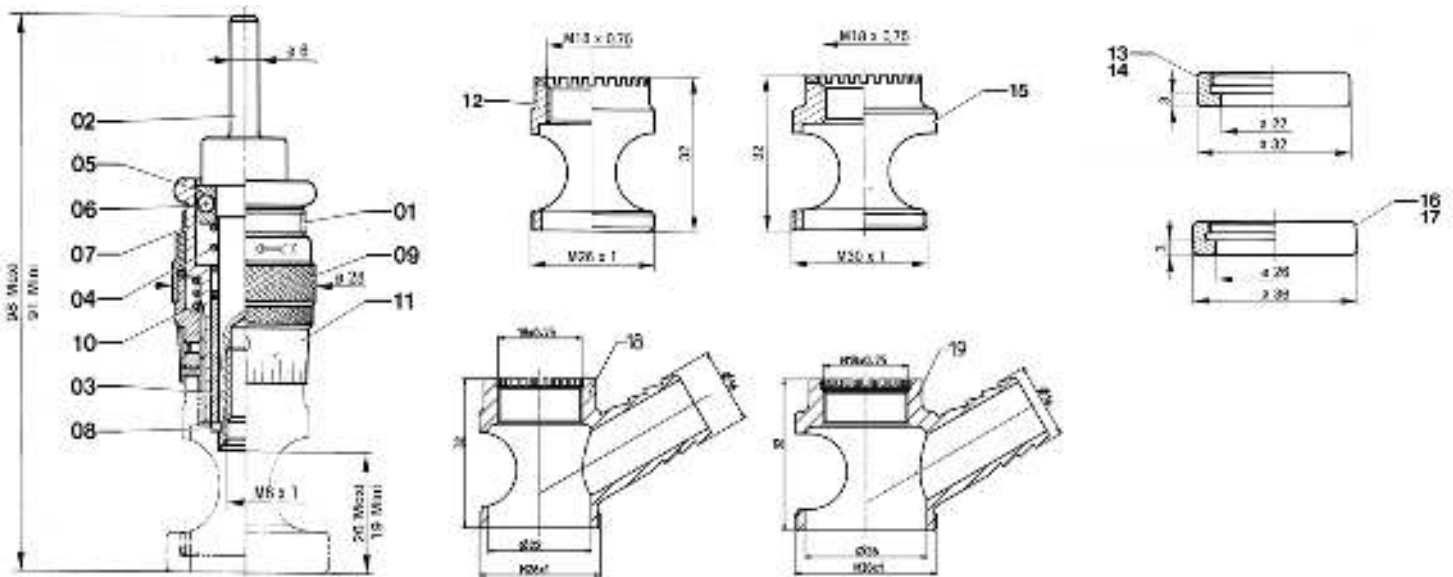
RB 306

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505020	1	1	Body
90025035PT	2	1	Spindle
90205280	3	1	Bronze bushing
93430045	4	1	Spring
90280015	5	1	Thrust bearing
90245130	6	20	Ball 2,5 mm dia
90280020	7	1	Thrust bearing
90013029	8	1	Circlips
90495015	9	1	Lock nut assembly
93430015	10	1	Spring

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
94215015	11	1	Vernier assembly
90815090W	12	1	Threaded Mounting Base Large Window
90825050	13	1	Hard Chrome Steel Nose
90825055	14	1	Nylon Nose Piece
90815095W	15	1	Threaded Mounting Base Large Window
90825080	16	1	Hard Chrome Steel Nose
90825085	17	1	Nylon Nose Piece
90815093W	18	1	Threaded Mounting Base Large Window With Vacuum
90815098W	19	1	Threaded Mounting Base Large Window With Vacuum
90825090	20	1	Rotary Nose Piece

A

LARGE WINDOW



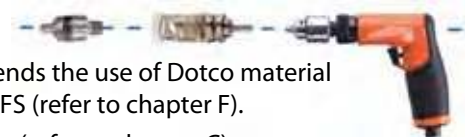
TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
 Cutter thread: M 8 X 1
 Stroke: 0.3" - 7.5 mm
 Ext. Maxi: 1.1" dia - Ø 28 mm

Weight: 175 - 185 g
 Overall length maxi: 3.85" - 98 mm
 Overall length mini: 3.25" - 91 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Microstop Cage For Drilling, Reaming and Countersinking

RB 306



Using cutters
of M 8 X 1 thread



ADVANTAGES

- Different mounting bases available
- This cage has been designed for use with cutters greater than 0.394" dia.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- Cemented, hardened and ground chrome-nickel steel spindle mounted on a self lubricating bronze body and a thrust bearing.
- Centring-cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.



(Pictures are not contractual)

RB 306		Microstop Cage Assembly Code Small Window								
		RC-10025010	RC-10025015	10025105	10025110	10025001	10025016	10025111	10025116	10025117
Basic Drill Cage		●	●	●	●	●	●	●	●	●
Threaded Mounting Base	90815090	●	●							
Threaded Mounting Base With Vacuum	90815093					●	●			
Threaded Mounting Base	90815095			●	●					
Threaded Mounting Base With Vacuum	90815098							●	●	●
Hard Chrome Steel Nose	90825050	●				●				
Nylon Nose Piece	90825055		●				●			
Hard Chrome Steel Nose	90825080			●						●
Nylon Nose Piece	90825085				●			●		
Rotary Nose Piece	90825090								●	

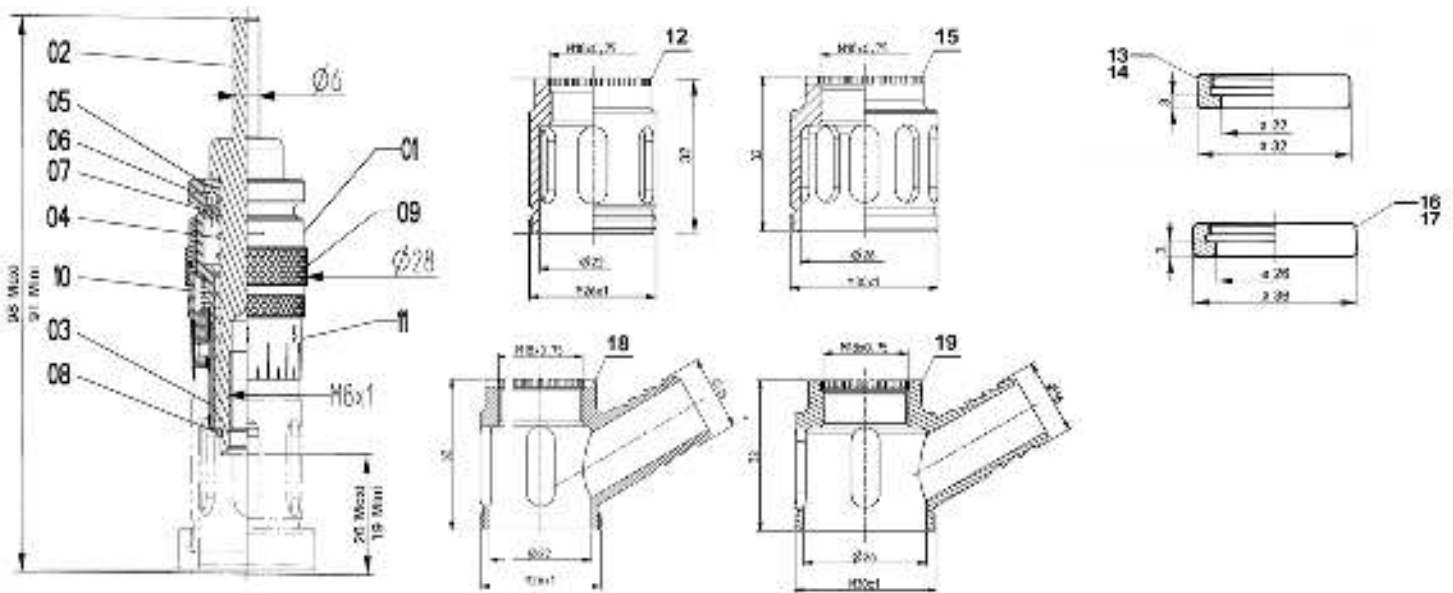
Microstop Cage For Drilling, Reaming and Countersinking

RB 306

REFERENCE spare parts	INDEX	QTY	DESCRIPTION	REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505020	1	1	Body	94215015	11	1	Vernier assembly
90025035PT	2	1	Spindle	90815090	12	1	Threaded Mounting Base
90205280	3	1	Bronze bushing	90825050	13	1	Hard Chrome Steel Nose
93430045	4	1	Spring	90825055	14	1	Nylon Nose Piece
90280015	5	1	Thrust bearing	90815095	15	1	Threaded Mounting Base
90245130	6	20	Ball 2,5 mm dia	90825080	16	1	Hard Chrome Steel Nose
90280020	7	1	Thrust bearing	90825085	17	1	Nylon Nose Piece
90013029	8	1	Circlips	90815093	18	1	Threaded Mounting Base With Vacuum
90495015	9	1	Lock nut assembly	90815098	19	1	Threaded Mounting Base With Vacuum
93430015	10	1	Spring	90825090	20	1	Rotary Nose Piece

A

SMALL WINDOW



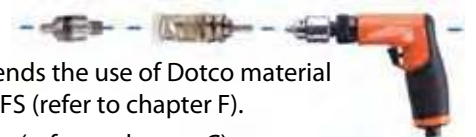
TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
 Cutter thread: M 8 X 1
 Stroke: 0.3" - 7.5 mm
 Ext. Maxi: 1.1" dia - Ø 28 mm

Weight: 175 - 185 g
 Overall length maxi: 3.85" - 98 mm
 Overall length mini: 3.25" - 91 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Ball type Microstop Cage For Drilling, Reaming and Countersinking

**RB 307
RBI 307**



RB 307
Using cutters of
M 8 X 1 thread

RBI 307
Using cutters of
1/4" - 28 F thread



ADVANTAGES

- Different mounting bases available.
- Reduced dimensions for tight access areas.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- High precision microstop cage, body in heat treated chrome steel, fully ground throughout. This ball mounted microstop cage includes two needle bearings for best utilisation.
- When using the RB 307, any misalignment of the microstop cage is corrected by the unique ball pivoting spindle. This assembly ensures perpendicularity throughout the operation at all time.
- Centring cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

LARGE WINDOW



		Microstop Cage Assembly Code Large Window												
RB 307		10020010W	10020015W	10020020W	10020105W	10020110W	10020115W	10020200W	10020016W	10020001W	10020021W	10020106W	10020111W	10020116W
RBI 307		10020060W	10020065W	10020070W	10020155W	10020160W	10020165W	10020250W						10020166W
Basic Drill Cage		●	●	●	●	●	●	●	●	●	●	●	●	●
Threaded + tapped base Large Window	90815075W	●	●	●										
Threaded Mounting Base Large Window With Vacuum	90815078W								●	●	●			
Offset Mounting Base Large Window + 3 nylon pins	90815085W							●						
Threaded Mounting Base Large Window With Vacuum	90815103W											●	●	●
Threaded Mounting Base Large Window	90815105W				●	●	●							
Nose Piece rotatif assemblé	90825210	●								●				
Hard Chrome Steel Nose	90825015		●						●					
Nylon Nose Piece	90825020			●							●			
Celeron Rotary Nose	90825205				●							●		
Hard Chrome Steel Nose	90825080					●							●	
Nylon Nose Piece	90825085						●							●

Ball type Microstop Cage For Drilling, Reaming and Countersinking

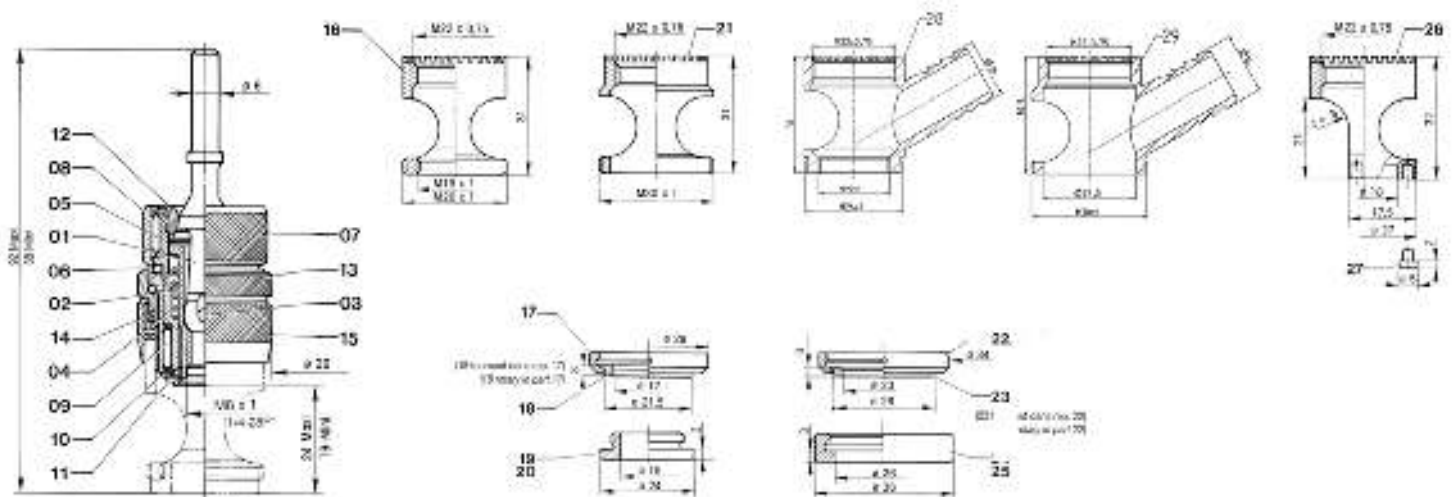
**RB 307
RBI 307**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90025030	1	1	Spindle
91015010	2	1	RB 307 Sleeve
91015006	2	1	RBI 307 Sleeve
91215010	3	1	Pin
93430045	4	1	Spring
90620005	5	1	Bush
90245100	6	31	Ball 2 mm dia
90505025	7	1	Body
90405295	8	1	Needle Cage
90405165	9	1	Needle Cage
RC-93440010	10	1	Washer
93605050	11	1	Circlips
90255005	12	1	Plug
90495020	13	1	Locknut
93430020	14	1	Spring

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
94215020	15	1	Vernier assembly
90815075 W	16	1	Threaded + tapped base Large Window
90225005	17	1	Ring
90825210	18	1	Rotary Nose Piece
90825015	19	1	Hard Chrome Steel Nose
90825020	20	1	Nylon Nose Piece
90815105 W	21	1	Threaded Mounting Base
90225010	22	1	Ring
90825205	23	1	Rotary Nose Piece
90825080	24	1	Hard Chrome Steel Nose
90825085	25	1	Nylon Nose Piece
90815084 W	26	1	Offset Mounting Base Large Window
93045015	27	3	Nylon Pin
90815078 W	28	1	Threaded Mounting Base Large Window With Vacuum
90815103 W	29	1	Threaded Mounting Base Large Window With Vacuum
90811085 W	26 + 27		Offset Mounting Base Large Window + Nylon Pin

A

LARGE WINDOW



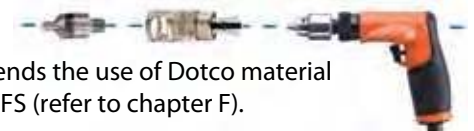
TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
Cutter thread: RB 307: M 8 X 1
 RBI 307: 1/4" - 28
Stroke: 0,275" - 7 mm
Ext. Maxi: 1.141" dia - Ø 29 mm

Weight: 155 - 165 g
Overall length maxi: 3.62" - 98 mm
Overall length mini: 3.46" - 88 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).
- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.



Ball type Microstop Cage For Drilling, Reaming and Countersinking

**RB 307
RBI 307**



ADVANTAGES

- Different mounting bases available.
- Reduced dimensions for tight access areas.
- For special composites → mounting base with vacuum.

PRECISE MANUFACTURE

- High precision microstop cage, body in heat treated chrome steel, fully ground throughout. This ball mounted microstop cage includes two needle bearings for best utilisation.
- When using the RB 307, any misalignment of the microstop cage is corrected by the unique ball pivoting spindle. This assembly ensures perpendicularity throughout the operation at all time.
- Centring cone of the cutter (120°) for perfect concentricity.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

RB 307
Using cutters of
M 8 X 1 thread

RBI 307
Using cutters of
1/4" - 28 F thread



		Microstop Cage Assembly Code Small Window												
RB 307		10020010	10020015	10020020PT	10020105	10020110	10020115	10020200	10020016	10020001	10020021	10020106	10020111	10020116
RBI 307		10020060	10020065	10020070	10020155	10020160	10020165	10020250						10020166
Basic Drill Cage		●	●	●	●	●	●	●	●	●	●	●	●	●
Threaded + tapped base	90815075	●	●	●										
Threaded Mounting Base With Vacuum	90815078								●	●	●			
Offset Mounting Base + 3 nylon pins	90815085							●						
Threaded Mounting Base With Vacuum	90815103											●	●	●
Threaded Mounting Base	90815105				●	●	●							
Celeron Rotary Nose	90825210	●								●				
Hard Chrome Steel Nose	90825015		●						●					
Nylon Nose Piece	90825020			●							●			
Celeron Rotary Nose	90825205				●									
Hard Chrome Steel Nose	90825080					●							●	
Nylon Nose Piece	90825085						●							●

Ball type Microstop Cage For Drilling, Reaming and Countersinking

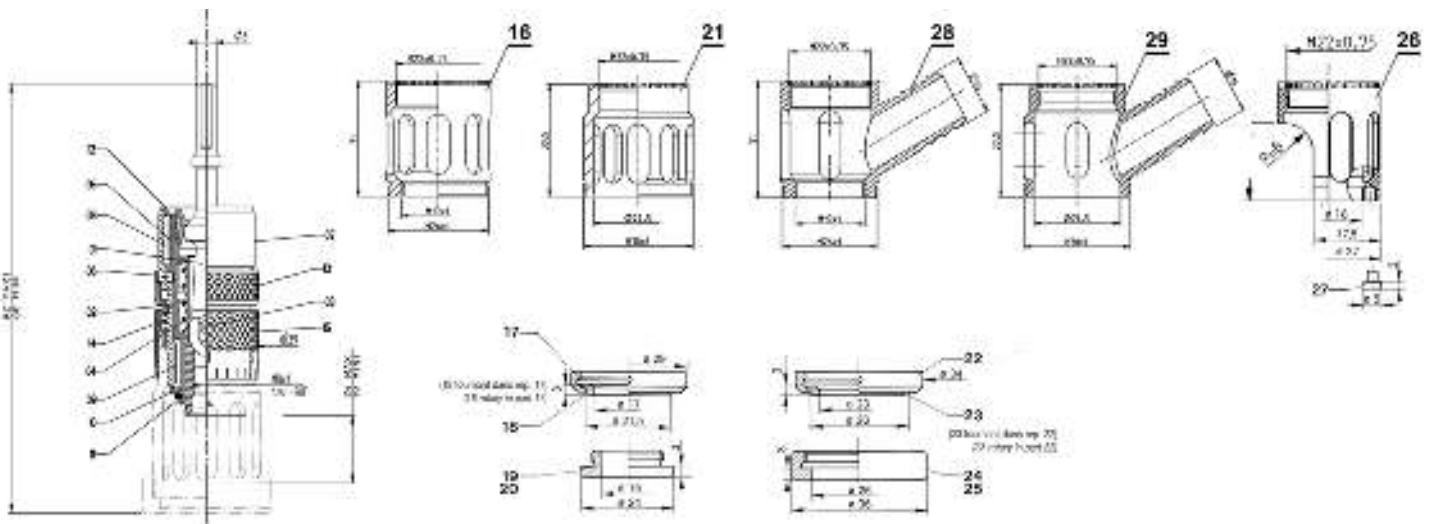
**RB 307
RBI 307**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90025030	1	1	Spindle
91015010	2	1	RB 307 Sleeve
91015006	2	1	RBI 307 Sleeve
91215010	3	1	Pin
93430045	4	1	Spring
90620005	5	1	Bush
90245100	6	31	Ball 2 mm dia
90505025	7	1	Body
90405295	8	1	Needle Cage
90405165	9	1	Needle Cage
RC-93440010	10	1	Washer
93605050	11	1	Circlips
90255005	12	1	Plug
90495020	13	1	Locknut
93430020	14	1	Spring

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
94215020	15	1	Vernier assembly
90815075 W	16	1	Threaded + tapped base
90225005	17	1	Ring
90825210	18	1	Rotary Nose Piece
90825015	19	1	Hard Chrome Steel Nose
90825020	20	1	Nylon Nose Piece
90815105	21	1	Threaded Mounting Base
90225010	22	1	Ring
90825205	23	1	Rotary Nose Piece
90825080	24	1	Hard Chrome Steel Nose
90825085	25	1	Nylon Nose Piece
90815084	26	1	Offset Mounting Base
93045015	27	3	Nylon Pin
90815078	28	1	Threaded Mounting Base With Vacuum
90815103	29	1	Threaded Mounting Base With Vacuum
90811085	26 + 27		Offset Mounting Base + Nylon Pin

A

SMALL WINDOW



TECHNICAL DATA

Shank: 0.236" dia - Ø 6 mm
 Cutter thread: RB 307: M 8 X 1
 RBI 307: 1/4" - 28
 Stroke: 0,275" - 7 mm
 Ext. Maxi: 1.141" dia - Ø 29 mm

Weight: 155 - 165 g
 Overall length maxi: 3.62" - 98 mm
 Overall length mini: 3.46" - 88 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).
- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.



Microstop Cage For Drilling, Reaming and Countersinking

RB 406



ADVANTAGES

- This drill cage has been designed for use with cutter of 7/8" to 1.1/2" dia.
- Different mounting bases available.
- Reduced dimensions for tight access areas.

PRECISE MANUFACTURE

- Detachable spindle adaptor provides alternative methods for use:
 - In combination with 3 jaw chuck.
 - Mounting direct onto machine spindle. This method provides increased level of concentricity, while reducing the length and weight of the drill / tool assembly. This results in better performance, improved machining and less fatigue on the operator.
- Cemented, hardened and ground chrome-nickel steel spindle mounted on 3 needle-bearings and a thrust bearing.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

Using cutters
of M 10 X 1 thread



Basic Drill Cage + Adaptor



(Pictures are not contractual)

RB 406		Microstop Cage Assembly Code*			
		10030010W	10030010PT	100300105W	100300105
Basic Drill Cage + Adaptor		●	●	●	●
Mounting Base Flat Bearing Large Window	90815150W	●			
Mounting Base Flat Bearing	90815150		●		
Mounting Base Flat Bearing Large Window	90815155W			●	
Mounting Base Flat Bearing	90815155				●

*Add CJ or CJW to the reference for Jacobs cone adaptor.

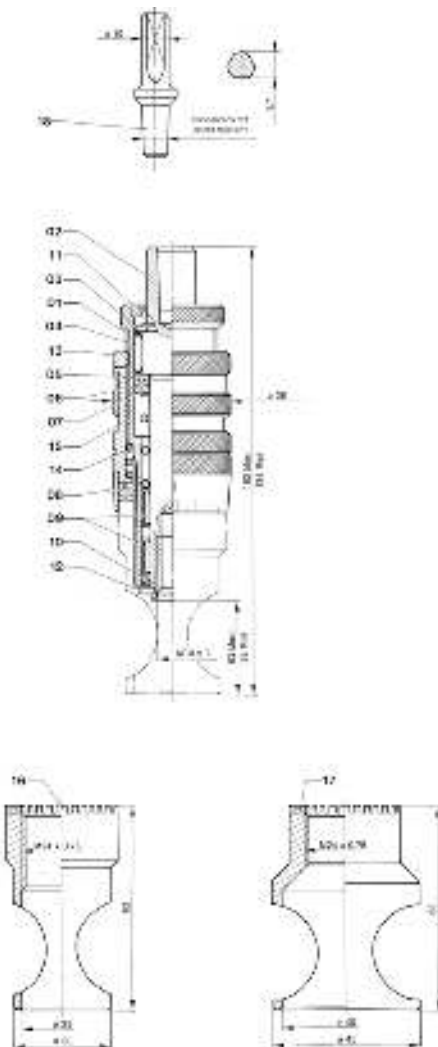
Microstop Cage For Drilling, Reaming and Countersinking

RB 406

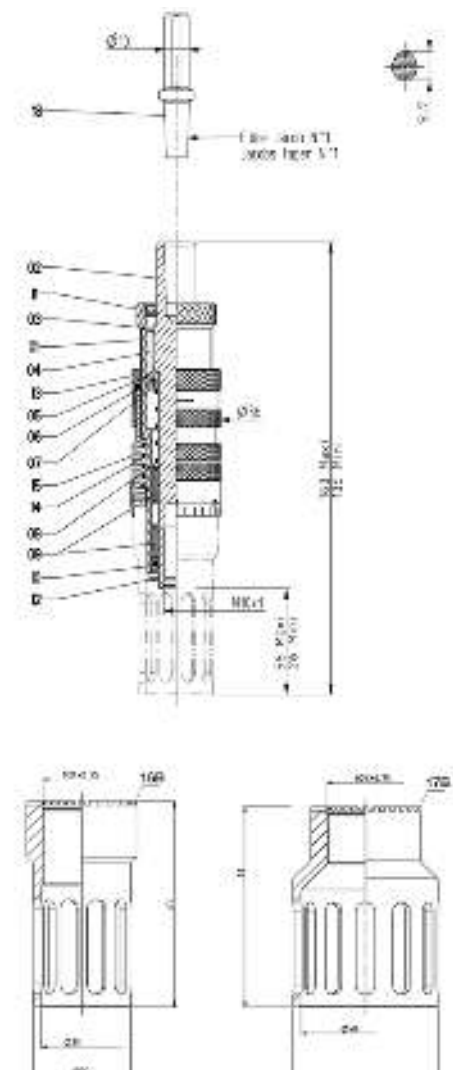
REFERENCE spare parts	INDEX	QTY	DESCRIPTION	REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505035	1	1	Body	90230120	11	1	Seal ring
90025045PT	2	1	Spindle	90430005	12	1	U-link
93605065	3	1	Circlips	90495030	13	1	Locknut
90405270	4	1	Needle Cage	93430030	14	1	Spring
90280025	5	1	Thrust bearings	94215030	15	1	Vernier assembly
90245130	6	23	Ball 2,5 mm dia	90815150W	16	1	Mounting Base Flat Bearing Large Window
90280030	7	1	Thrust bearings	90815150	16B		Mounting Base Flat Bearing
93430055	8	1	Spring	90815155W	17	1	Mounting Base Flat Bearing Large Window
90615085	9	2	Needle bearing	90815155	17B		Mounting Base Flat Bearing
90230085	10	1	Seal ring	90005005	18	1	Adaptor

A

LARGE WINDOW



SMALL WINDOW



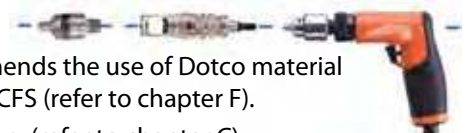
TECHNICAL DATA

Cutter thread: M 10 X 1
 Stroke: .551" - Ø 14 mm
 Ext. Maxi: 1,417" dia - Ø 36 mm

Weight: 545 g
 Overall length maxi: 6,417" - 163 mm
 Overall length mini: 5,354" - 136 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Microstop Cage For Drilling, Reaming and Countersinking

**RB 356 HP 21
RB 356 HPI 21**



RB 356 HP 21
Using cutters
of M 6 X 1 thread

RB 356 HPI 21
Using cutters
of 1/4" - 28 F thread

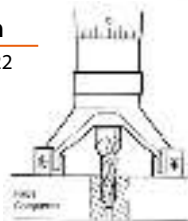


PRECISE MANUFACTURE

- Detachable spindle adaptor provides alternative methods for use:
 - In combination with 3 jaw chuck.
 - Mounting direct onto machine spindle. This method provides increased level of concentricity, while reducing the length and weight of the drill / tool assembly. This results in better performance, improved machining and less fatigue on the operator.
- Cemented, hardened and ground chrome-nickel steel spindle mounted on 3 needle-bearings and a thrust bearing.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

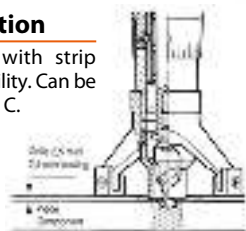
Reaming + Countersinking application

In this example, the tripod is used with cutter RB 022 (refer to chapter C). (Positioning of the cutter with pilot into the pilot hole).



Drilling + Countersinking application

The mounting base is commonly used with strip templates. The tripod ensures maximum stability. Can be used with Cutter type RB 018, refer to chapter C.



(Pictures are not contractual)

		Microstop Cage Assembly Code Large Window*					
RB 356 HP 21		10040000PT	10040200W	10040210W	10040405W	10040505W	10040600W
RB 356 HPI 21		10040050	10040250W	10040260W	10040455W	10040555W	10040650W
RB 356 HPI 21 (Thread 3/8-24F)		10040700PT	10040720W	10040730W	10040740W	10040750W	10040760W
Basic Drill Cage + Adaptor	RB 356 HP 21 RB 356 HPI 21	●	●	●	●	●	●
Mounting Base Flat Bearing Large Window	90815125W		●	●			
Threaded Mounting Base Large Window	90815135W				●		
Tripod + 3 nylon studs	90815165W			●		●	
Mounting Base Flat Bearing Large Window	90815070W						●
Nylon Nose Piece	90825175				●		

*Add CJ or CJW to the reference for Jacobs cone adaptor.

Microstop Cage For Drilling, Reaming and Countersinking

**RB 356 HP 21
RB 356 HPI 21**



RB 356 HP 21
Using cutters
of M 6 X 1 thread

RB 356 HPI 21
Using cutters
of 1/4" - 28 F thread

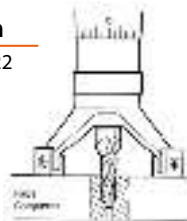


PRECISE MANUFACTURE

- Detachable spindle adaptor provides alternative methods for use:
 - In combination with 3 jaw chuck.
 - Mounting direct onto machine spindle. This method provides increased level of concentricity, while reducing the length and weight of the drill / tool assembly. This results in better performance, improved machining and less fatigue on the operator.
- Cemented, hardened and ground chrome-nickel steel spindle mounted on 3 needle-bearings and a thrust bearing.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

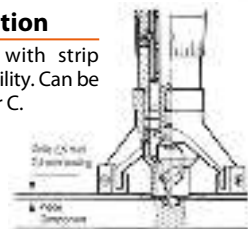
Reaming + Countersinking application

In this example, the tripod is used with cutter RB 022 (refer to chapter C). (Positioning of the cutter with pilot into the pilot hole).



Drilling + Countersinking application

The mounting base is commonly used with strip templates. The tripod ensures maximum stability. Can be used with Cutter type RB 018, refer to chapter C.



(Pictures are not contractual)

		Microstop Cage Assembly Code Small Window*					
RB 356 HP 21		10040000PT	10040200PT	10040210	10040405	10040505	10040600PT
RB 356 HPI 21		10040050	10040250	10040260	10040455	10040555	10040650
RB 356 HPI 21 (Thread 3/8-24F)		10040700PT	10040720	10040730	10040740	10040750	10040760
Basic Drill Cage + Adaptor	RB 356 HP 21 RB 356 HPI 21	●	●	●	●	●	●
Mounting Base Flat Bearing	90815125		●	●			
Threaded Mounting Base	90815135				●		
Tripod + 3 Nylon studs	90815165			●		●	
Mounting Base Flat Bearing	90815070						●
Nylon Nose Piece	90825175				●		

*Add CJ or CJW to the reference for Jacobs cone adaptor.

Microstop Cage

For Drilling, Reaming and Countersinking

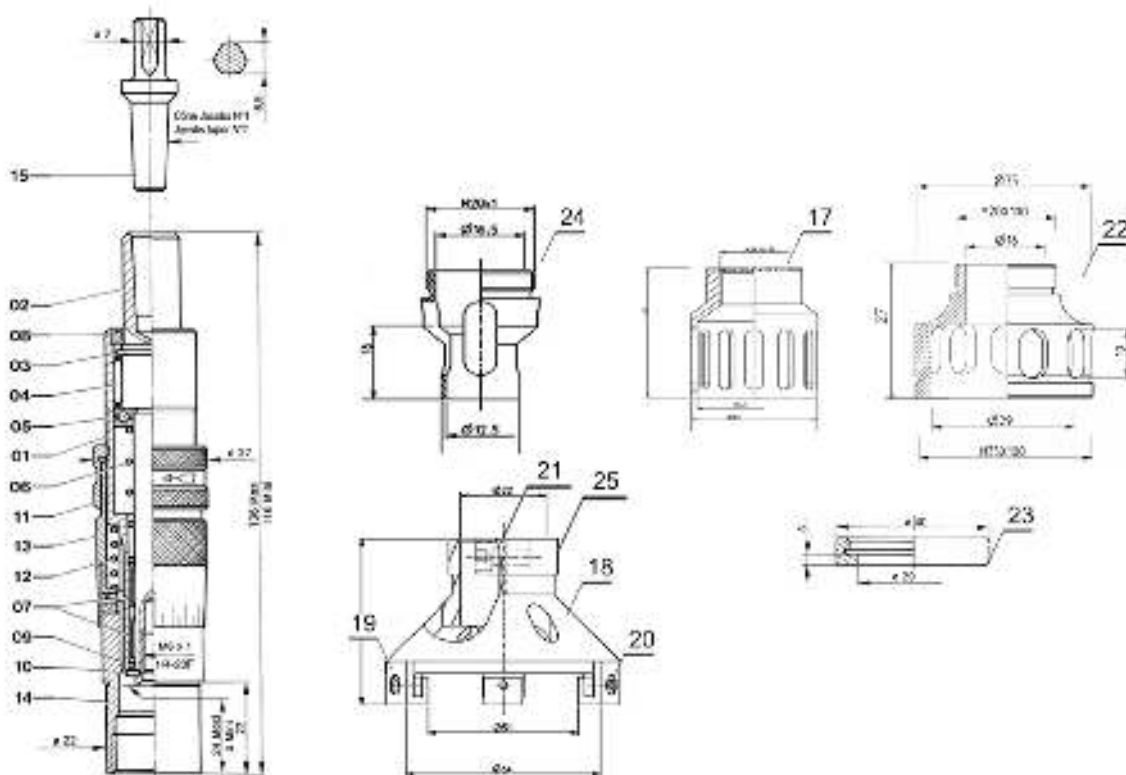
**RB 356 HP 21
RB 356 HPI 21**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505050	1	1	Body
90025065PT	2	1	RB 356 HP 21 Spindle
90025066	2	1	RB 356 HPI 21 Spindle
90025107	2	1	RB 356 HP 21 (Thread 3/8-24F) Spindle
93605050	3	1	Circlips
90405170	4	1	Needle Cage
90280035	5	1	Thrust bearings
93430070	6	1	Spring
90615050	7	2	Needle bearing
90230085	8	1	Seal ring
90230045	9	1	Seal ring
90456030	10	1	Circlips
90495035	11	1	Locknut

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
93430035	12	1	Locknut
94215035	13	1	Vernier assembly
90815115	14	1	Mounting Base
90005010	15	1	Adaptor
90815125W	17	1	Mounting Base Flat Bearing
90815160W	18	1	Mounting Base
90825190	19	3	Nylon stud
94235324	20	3	Screw F/90
94232085	21	1	Screw CHc
90815135W	22	1	Threaded Mounting Base
90825175	23	1	Nylon Nose Piece
90815070W	24	1	Mounting Base
90815165W	25	1	Tripod + 3 nylon studs

A

SMALL WINDOW



TECHNICAL DATA

Cutter thread: RB 356 HP 21: M 6 X 1
Cutter thread: RB 356 HPI 21: 1/4" - 28 F
Stroke: .826" - 21 mm
Ext. Maxi: 1.063" dia - Ø 27 mm

Weight: 300 g
Overall length maxi: 5.354" - 136 mm
Overall length mini: 4.567" - 116 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).

- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

(Thread 3/8-24F)

Microstop Cage For Drilling, Reaming and Countersinking

**RB 356 HP 38
RBI 356 HPI 38**



RB 356 HP 38
Using cutters
of M 6 X 1 thread

RB 356 HPI 38
Using cutters
of 1/4" - 28 F thread

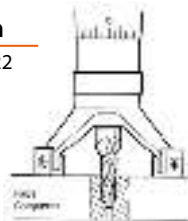


PRECISE MANUFACTURE

- Detachable spindle adaptor provides alternative methods for use:
 - In combination with 3 jaw chuck.
 - Mounting direct onto machine spindle. This method provides increased level of concentricity, while reducing the length and weight of the drill / tool assembly. This results in better performance, improved machining and less fatigue on the operator.
- Cemented, hardened and ground chrome-nickel steel spindle mounted on 3 needle-bearings and a thrust bearing.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

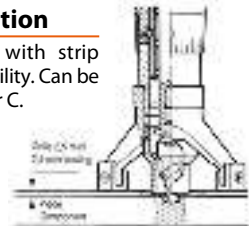
Reaming + Countersinking application

In this example, the tripod is used with cutter RB 022 (refer to chapter C). (Positioning of the cutter with pilot into the pilot hole).



Drilling + Countersinking application

The mounting base is commonly used with strip templates. The tripod ensures maximum stability. Can be used with Cutter type RB 018, refer to chapter C.



(Pictures are not contractual)

		Microstop Cage Assembly Code Large Window*					
RB 356 HP 38		10045000PT	10045200W	10045210W	10045405W	10045505W	10045600W
RB 356 HPI 38		10045050	10045250W	10045260W	10045455W	10045555W	10045650W
RB 356 HPI 38 (Thread 3/8-24F)		10045700PT	10045720W	10045730W	10045740W	10045750W	10045760W
Basic Drill Cage + Adaptor	RB 356 HP 38 RB 356 HPI 38	●	●	●	●	●	●
Mounting Base Flat Bearing Large Window	90815125W		●	●			
Threaded Mounting Base Large Window	90815135W				●		
Tripod + 3 Nylon studs Large Window	90815165W			●		●	
Mounting Base Flat Bearing Large Window	90815070W						●
Nylon Nose Piece	90825175				●		

*Add CJ or CJW to the reference for Jacobs cone adaptor.

Microstop Cage

For Drilling, Reaming and Countersinking

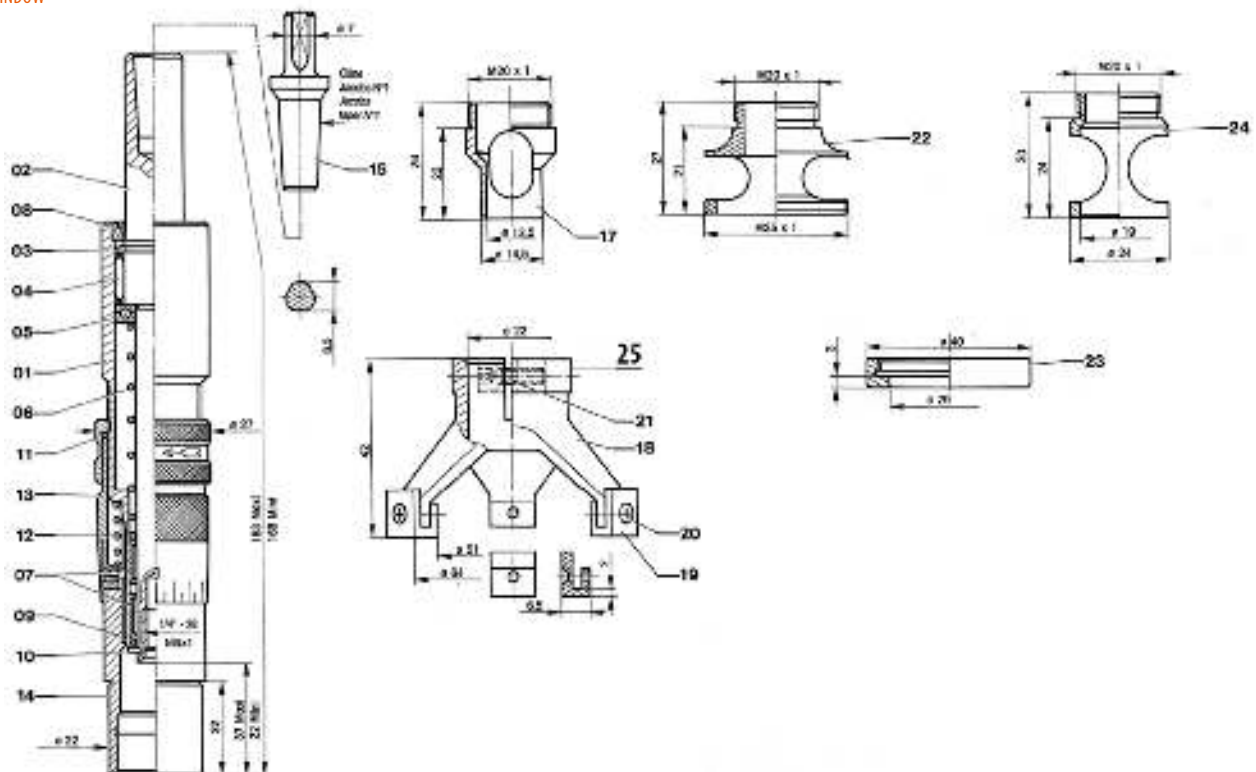
**RB 356 HP 38
RBI 356 HPI 38**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505045	1	1	Body
90025060	2	1	RB 356 HP 38 Spindle
90025070PT	2	1	RB 356 HPI 38 Spindle
90025106	2	1	RB 356 HP 38 (Thread 3/8-24F) Spindle
93605050	3	1	Circlips
90405170	4	1	Needle Cage
90280035	5	1	Thrust bearings
93430065	6	1	Spring
90615050	7	2	Needle bearing
90230085	8	1	Seal ring
90230045	9	1	Seal ring
90456030	10	1	Circlips
90495035	11	1	Locknut

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
93430035	12	1	Locknut
94215035	13	1	Vernier assembly
90815065	14	1	Mounting Base
90005010	15	1	Adaptor
90815125 W	17	1	Mounting Base Flat Bearing Large Window
90815160W	18	1	Mounting Base Large Window
90825190	19	3	Nylon stud
94235324	20	3	Screw F/90
94232085	21	1	Screw CHC
90815135W	22	1	Mounting Base Large Window
90825175	23	1	Nylon Nose Piece
90815070W	24	1	Offset Mounting Base plate Large Window
90815165W	25	1	Tripod + 3 Nylon studs Large Window

A

LARGE WINDOW



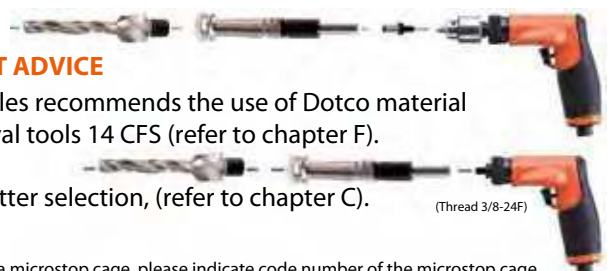
TECHNICAL DATA

Cutter thread: RB 356 HP 38: M 6 X 1
RB 356 HPI 38: 1/4" - 28 F
Stroke: 1.500" - Ø 38 mm
Ext. Maxi: 1.063" dia - Ø 27 mm

Weight: 375 g
Overall length maxi: 7.204" - 183 mm
Overall length mini: 6.614" - 168 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Microstop Cage For Drilling, Reaming and Countersinking

**RB 356 HP 38
RBI 356 HPI 38**



RB 356 HP 38
Using cutters
of M 6 X 1 thread

RB 356 HPI 38
Using cutters
of 1/4" - 28 F thread

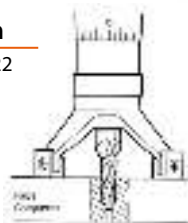


PRECISE MANUFACTURE

- Detachable spindle adaptor provides alternative methods for use:
 - In combination with 3 jaw chuck.
 - Mounting direct onto machine spindle. This method provides increased level of concentricity, while reducing the length and weight of the drill / tool assembly. This results in better performance, improved machining and less fatigue on the operator.
- Cemented, hardened and ground chrome-nickel steel spindle mounted on 3 needle-bearings and a thrust bearing.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

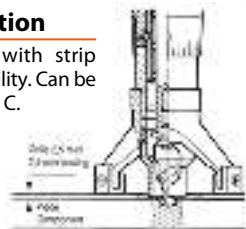
Reaming + Countersinking application

In this example, the tripod is used with cutter RB 022 (refer to chapter C). (Positioning of the cutter with pilot into the pilot hole).



Drilling + Countersinking application

The mounting base is commonly used with strip templates. The tripod ensures maximum stability. Can be used with Cutter type RB 018, refer to chapter C.



(Pictures are not contractual)

		Microstop Cage Assembly Code Small Window*					
RB 356 HP 38		10045000PT	10045200PT	10045210	10045405	10045505	10045600PT
RB 356 HPI 38		10045050	10045250	10045260	10045455	10045555	10045650
RB 356 HPI 38 (Thread 3/8-24F)		10045700PT	10045720	10045730	10045740	10045750	10045760
Basic Drill Cage + Adaptor	RB 356 HP 38 RB 356 HPI 38	●	●	●	●	●	●
Mounting Base Flat Bearing	90815125		●	●			
Threaded Mounting Base	90815135				●		
Tripod + 3 Nylon studs	90815165			●		●	
Mounting Base Flat Bearing	90815070						●
Nylon Nose Piece	90825175				●		

*Add CJ or CJW to the reference for Jacobs cone adaptor.

Microstop Cage

For Drilling, Reaming and Countersinking

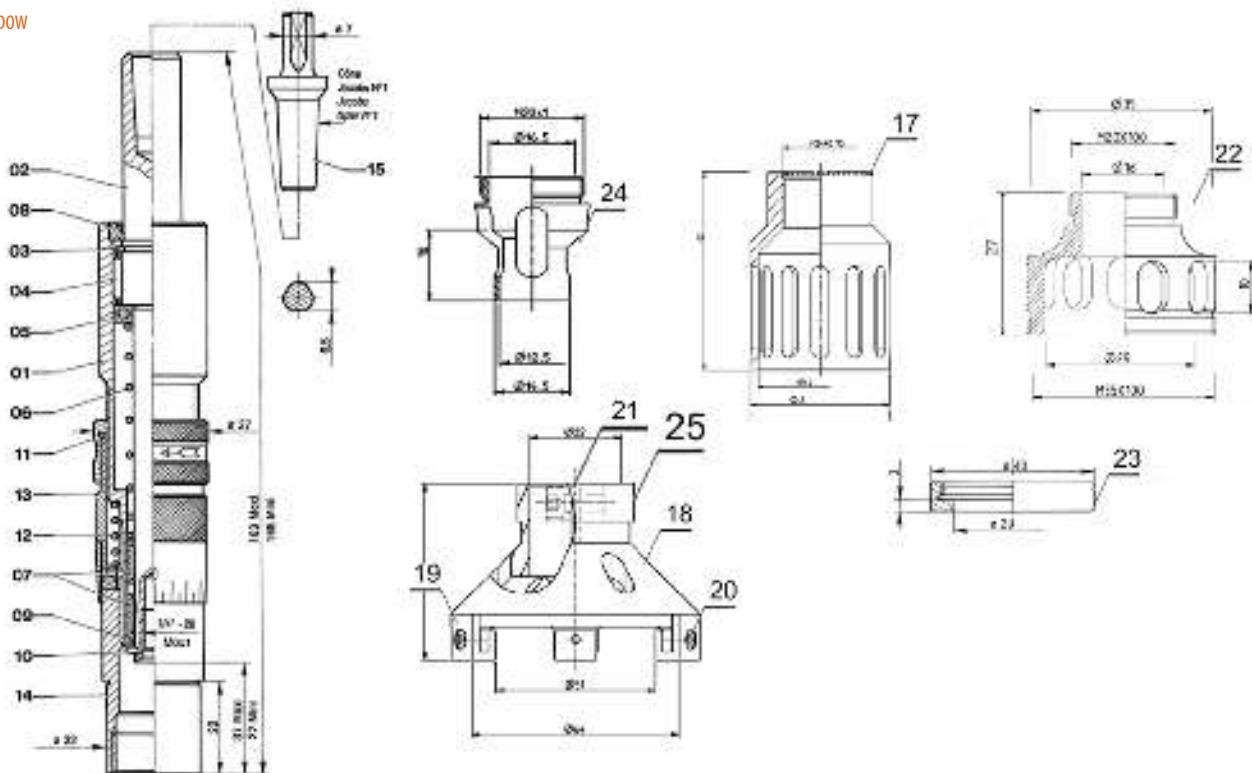
**RB 356 HP 38
RBI 356 HPI 38**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505045	1	1	Body
90025060	2	1	RB 356 HP 38 Spindle
90025070PT	2	1	RB 356 HPI 38 Spindle
90025106	2	1	RB 356 HP 38 (Thread 3/8-24F) Spindle
93605050	3	1	Circlips
90405170	4	1	Needle Cage
90280035	5	1	Thrust bearings
93430065	6	1	Spring
90615050	7	2	Needle bearings
90230085	8	1	Seal ring
90230045	9	1	Seal ring
90456030	10	1	Circlips
90495035	11	1	Locknut

REFERENCE spare parts	INDEX	QTY	DESCRIPTION
93430035	12	1	Locknut
94215035	13	1	Vernier assembly
90815065	14	1	Mounting Base
90005010	15	1	Adaptor
90815125 W	17	1	Mounting Base Flat Bearing
90815160W	18	1	Mounting Base
90825190	19	3	Nylon stud
94235324	20	3	Screw F/90
94232085	21	1	Screw CHC
90815135W	22	1	Mounting Base
90825175	23	1	Nylon Nose Piece
90815070W	24	1	Offset Mounting Base plate
90815165W	25	1	Tripod + 3 Nylon studs



SMALL WINDOW



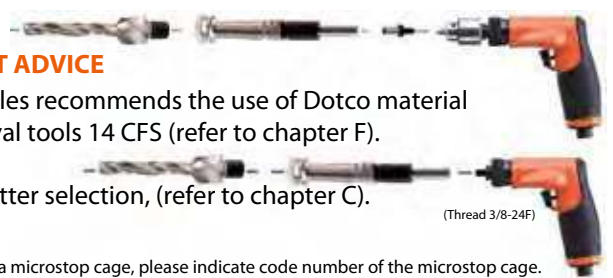
TECHNICAL DATA

Cutter thread: RB 356 HP 38: M 6 X 1
RB 356 HPI 38: 1/4" - 28 F
Stroke: 1.500" - Ø 38 mm
Ext. Maxi: 1.063" dia - Ø 27 mm

Weight: 375 g
Overall length maxi: 7.204" - 183 mm
Overall length mini: 6.614" - 168 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.

Microstop Cage

For Drilling, Reaming and Countersinking

RB 356 HP 58
RBI 356 HPI 58



RB 356 HP 58
Using cutters
of M 10 X 1 thread



RB 356 HPI 58
Using cutters
of 7/16" - 20 F thread



ADVANTAGES

- Special for drill countersinking reamers and taper-lok cutters:
 - RB 356 HPI 58 for use with taper-lok cutters
 - RB 356 HP 58 for use with cutters RB 022

PRECISE MANUFACTURE

- Detachable spindle adaptor provides alternative methods for use:
 - In combination with 3 jaw chuck.
 - Mounting direct onto machine spindle. This method provides increased level of concentricity, while reducing the length and weight of the drill / tool assembly. This results in better performance, improved machining and less fatigue on the operator.
- Cemented, hardened and ground chrome-nickel steel spindle mounted on 3 needle-bearings and a thrust bearing.
- Microstop depth adjustment (1 scale division = .001").
- Microstop depth setting is held securely in place by locknut with seal. This patented feature allows an easy loosening of the locknut without damage to the drill cage.

		Microstop Cage Assembly Code*	
		RB 356 HP 58	RB 356 HPI 58
		10050000W	10050000
		10050050W	10050050
Basic Drill Cage + Adaptor		●	●
Mounting Base Large Window	90815140W	●	
Mounting Base Flat Bearing	90815140		●

*Add CJ or CJW to the reference for Jacobs cone adaptor.



Microstop Cage

For Drilling, Reaming and Countersinking

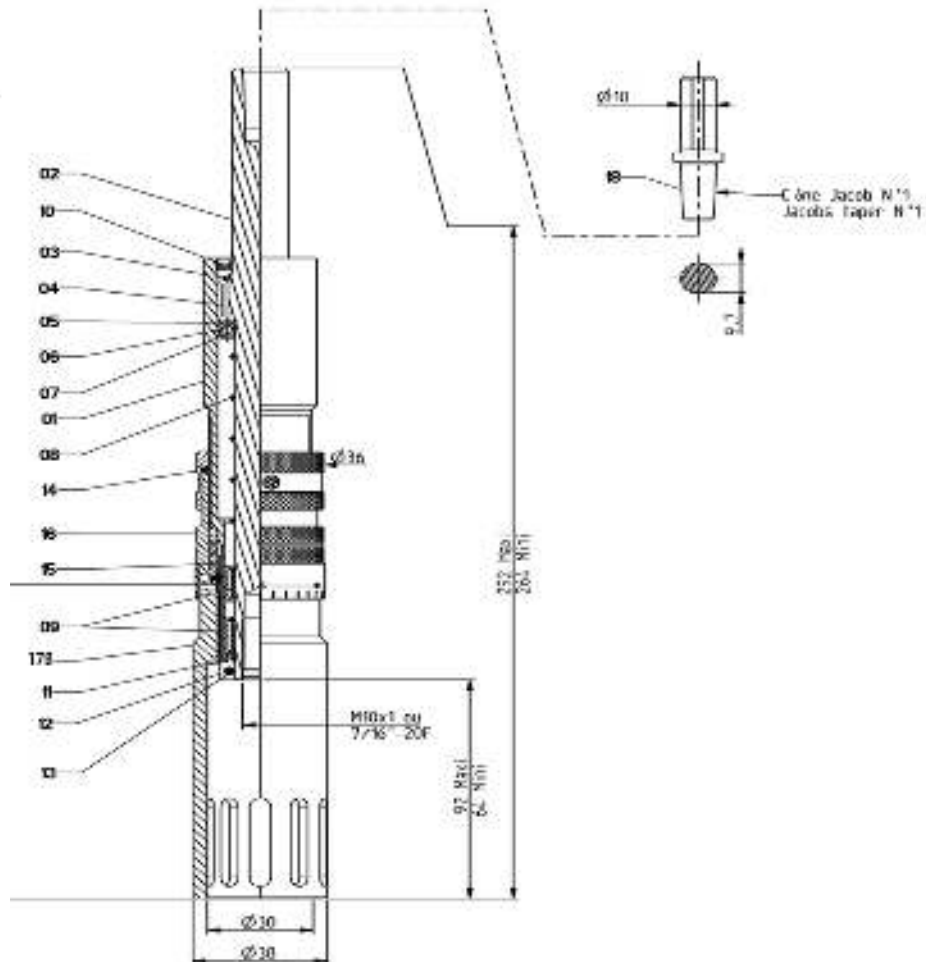
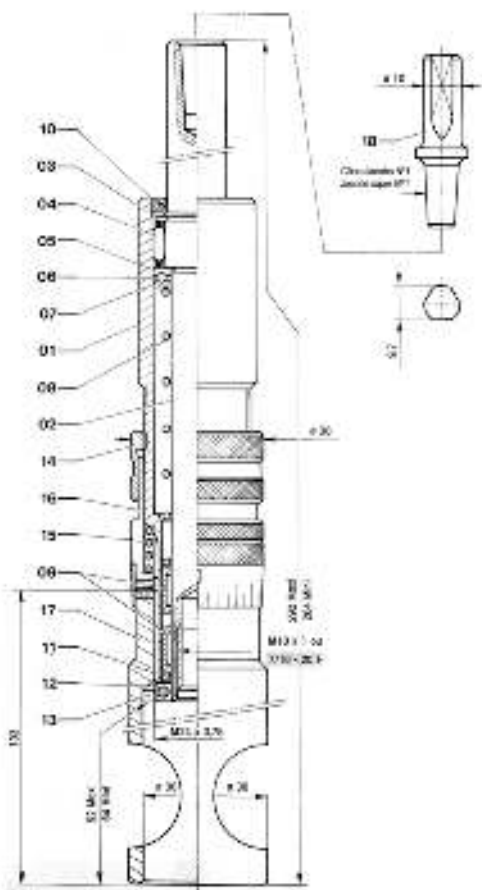
**RB 356 HP 58
RBI 356 HPI 58**

REFERENCE spare parts	INDEX	QTY	DESCRIPTION	REFERENCE spare parts	INDEX	QTY	DESCRIPTION
90505040	1	1	Body	90230120	10	1	Seal ring
90025055	2	1	Spindle RB356HP58	90230085	11	1	Seal ring
90025053	2	1	Spindle RB356HPI58	90475005	12	1	Collar
93605065	3	1	Circlips	94235001	13	1	Screw
90405270	4	1	Needle Cage	90495030	14	1	Locknut
90280025	5	1	Thrust bearings	93430030	15	1	Spring
90245130	6	23	Ball 2,5 mm dia	94215030	16	1	Vernier assembly
90280030	7	1	Thrust bearings	90815140W	17	1	Mounting Base Flat Bearing Large Window
93430060	8	1	Spring	90815140	17B	1	Mounting Base Flat Bearing
90615085	9	2	Needle bearing	90005005	18	1	Adaptor

A

LARGE WINDOW

SMALL WINDOW



TECHNICAL DATA

Cutter thread: RB 356 HP 58: M 10 X 1
RB 356 HP 58: 7/16" - 20 F
Stroke: 2.283" - 58 mm
Ext. Maxi: 1.5" dia - Ø 38 mm

Weight: 970 g
Overall length maxi: 11.5" - 292 mm
Overall length mini: 10.4" - 264 mm

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (refer to chapter F).
- For cutter selection, (refer to chapter C).



- To order a microstop cage, please indicate code number of the microstop cage.
- To order spare parts, please indicate spare parts code number.
- For special applications, please contact your customer service representative.



RB 356 HP 21



RB 156



RB 406

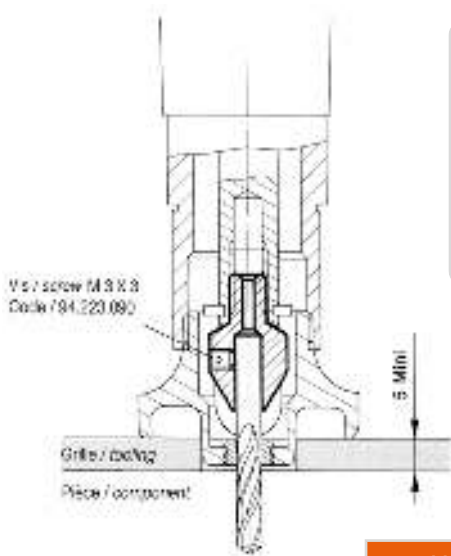
Microstop Cage	Shank dia.	Cutter thread	Stroke	Ø Ext. Maxi	Total length		Weight
					Mini	Maxi	
RB 156	Ø 4,8 mm - .188" dia	M 6 X 1	3,5 mm - .14"	Ø 25 mm - 1" dia	51 mm - 2"	55 mm - 2.16"	75 g.
RB 206	Ø 6 mm - .236" dia	M 6 X 1	6 mm - .236"	Ø 21 mm - .826" dia	95 mm - 3.74"	101 mm - 3.97"	110 - 120 g.
RBI 206	Ø 6 mm - .236" dia	1/4" - 28 F	6 mm - .236"	Ø 21 mm - .826" dia	95 mm - 3.74"	101 mm - 3.97"	110 - 120 g.
RB 256	Ø 6 mm - .236" dia	M 6 X 1	7,5 mm - .3"	Ø 28 mm - 1.1" dia	91 mm - 3.58"	98 mm - 3.85"	165 - 175 g.
RBI 256	Ø 6 mm - .236" dia	1/4" - 28 F	7,5 mm - .3"	Ø 28 mm - 1.1" dia	91 mm - 3.58"	98 mm - 3.85"	165 - 175 g.
RB 257	Ø 6 mm - .236" dia	M 6 X 1	6 mm - .236"	Ø 29 mm - 1.141" dia	88 mm - 3.46"	92 mm - 3.62"	155 - 165 g.
RB 258	Ø 6,35 mm - 1/4" dia	M 6 X 1	27 mm - 1.06"	Ø 29 mm - 1.141" dia	141 mm - 5.55"	156 mm - 6.14"	250 g.
RBI 258	Ø 6,35 mm - 1/4" dia	1/4" - 28 F	27 mm - 1.06"	Ø 29 mm - 1.141" dia	141 mm - 5.55"	156 mm - 6.14"	250 g.
RB 306	Ø 6 mm - .236" dia	M 8 X 1	7,5 mm - .3"	Ø 28 mm - 1.1" dia	91 mm - 3.58"	98 mm - 3.85"	175 - 185 g.
RB 307	Ø 6 mm - .236" dia	M 8 X 1	7 mm - .275"	Ø 29 mm - 1.141" dia	88 mm - 3.46"	98 mm - 3.62"	155 - 165 g.
RBI 307	Ø 6 mm - .236" dia	1/4" - 28 F	7 mm - .275"	Ø 29 mm - 1.141" dia	88 mm - 3.46"	98 mm - 3.62"	155 - 165 g.
RB 406		M 10 X 1	14 mm - .551"	Ø 36 mm - 1.417" dia	136 mm - 5.354"	163 mm - 6.417"	545 g.
RB 356 HP 21		M 6 X 1	21 mm - .826"	Ø 27 mm - 1.063" dia	116 mm - 4.567"	136 mm - 5.354"	300 g.
RB 356 HPI 21		1/4" - 28 F	21 mm - .826"	Ø 27 mm - 1.063" dia	116 mm - 4.567"	136 mm - 5.354"	300 g.
RB 356 HP 38		M 6 X 1	38 mm - 1.500"	Ø 27 mm - 1.063" dia	183 mm - 7.204"	168 mm - 6.614"	375 g.
RB 356 HPI 38		1/4" - 28 F	38 mm - 1.500"	Ø 27 mm - 1.063" dia	183 mm - 7.204"	168 mm - 6.614"	375 g.
RB 356 HP 58		M 10 X 1	58 mm - 2.283"	Ø 38 mm - 1.5" dia	264 mm - 10.4"	292 mm - 11.5"	970 g.
RB 356 HPI 58		7/16" - 20 F	58 mm - 2.283"	Ø 38 mm - 1.5" dia	264 mm - 10.4"	292 mm - 11.5"	970 g.

Microstop Cage
For Drilling, Reaming and Countersinking

Drill-Holder

For use with microstop cages

RB 50 HP
RB 50 HPI



ADVANTAGES

- The drill-holder should be used in combination with our mounting base 90815120.
- Expands the capability of the strip template, while reducing manufacturing cost.
- Precise concentricity ensures cutter wear is kept to a minimum.

A

Microstop cage	Drill holder attachment	Maximum drilling-dia	Base code number
RB 356 HP 21	M 6 X 1	6,35 - 1/4"	10120 + Ø
RB 356 HP 38	M 6 X 1	6,35 - 1/4"	10120 + Ø
RB 356 HPI 21	1/4 - 28 F	6,35 - 1/4"	10130 + Ø
RB 356 HPI 38	1/4 - 28 F	6,35 - 1/4"	10130 + Ø

Example, for use with a drill of 3,17 mm dia

For Drill-Holder M 6 X 1

For Drill-Holder 1/4 – 28F

Basic code

Drill size expressed in
1/100 mm

Basic code

Drill size expressed in
1/100 mm

10120

+

317

10120317

Code to indicate

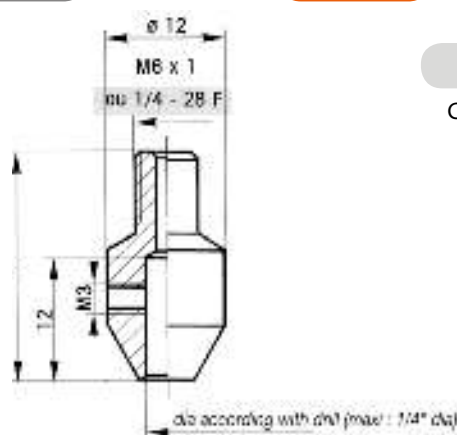
10130

+

317

10130317

Code to indicate



• All special drills for use on these drill-holders may be supplied on request.

ADE Machines



B

Positive Feed Drilling Machine A1

A1 Serie

DESCRIPTION

- Quickchange gearhead for easy repair or reconfiguration.
- Extralife clutch accessible for change in less than 15 minutes.
- Easy-change access to change both feed and MITIS™ in less than 15 minutes.
- Most flexible power train design configurable to minimize speed drop.
- Line re-balancing drill configuration in hours vs. months.
- Turbine 2.4hp/1.8kW, Vane 1.7hp/1.3kW at spindle for maximum speed/torque.
- Integrated MITIS™ for optimum chip evacuation.
- Uniquely configurable power train to maximize cutter life.
- Fastest wear item replacement in gearhead / MITIS™.
- Selectable turbine/vane motors to minimize operating cost based on usage.
- Minimal spare parts required.
- Configurable error-proofing.
- Anti-jam spindle.
- Add on counter for operator independent cutter change.
- Minimized speed drop for consistent hole quality.



CONFIGURATION



TECHNICAL DATA

Drill Application: • up to 3/4" or 19 mm in Titanium
• up to 1" or 25 mm in Aluminum

Motor power: 2,5 hp

Weight: 3,3 kg / 7,3 lbs

Noise level: <85 d BA

Air Inlet pressure: 6,3 Bars

Positive Feed Drilling Machine A1

A1 Serie

Model	Motor Configuration	Strokes	Rated Speed -0/+10%	Feeds		Accessories	Std Cutter / Spindle Attachment
				lpr	Mm/Tr		
A14V	Flat Offset Angle Drill Vane Motor	40 60 80	250, 320, 350, 410, 460, 510, 600, 670, 760, 850, 1100, 950, 1450, 1700, 1900, 2100, 2500, 2800, 3100	0,001	0,025	See Options	1/4" - 28F 5/16" - 24F 3/8" - 24F 7/16" - 20F 9/16 - 18F
A14T	Flat Offset Angle Drill Turbine		400, 600, 750, 950, 1700, 2500, 3200	0,002	0,05		
A16V	In Line Vane Motor		100 120 140	250, 320, 350, 410, 460, 510, 600, 670, 760, 850, 950, 1450, 1700, 1900, 2100, 2500, 2800, 3100	0,003 0,004		
A16T	In Line - Turbine		400, 600, 750, 950, 1700, 2500, 3200	0,006 0,007 0,008	0,15 0,18 0,20		

B

EASYCHANGE

FOR FEED TAE AND MITIS™

- Feed change in less than 15 minutes (Allows easy configuration and/or less time to repair).
- Mitis™ change in less than 15 minutes*(Allows easy configuration and/or less time to repair).

DURASLIP

- Clutch in home position to prevent jamming on high speed.

LOGIPOINT

AVAILABLE CONNECTION FOR ACCESSORIES/ERROR PROOFING

- Allows easy implementation of:
 - Remote start
 - Start safety interlock
 - Air supply to accessories
 - Remote retract
 - Cycle complete
- Makes customization easier.
- Coolant shut-off in retract.
- Get the configuration you want in less time.

FLEXMOTOR

- Available in Right Angle or Inline Configuration.



LIFTSWITCH

MECHANICAL INITIATION OF RETRACT

- Improved reliability
- Longer life
- Less defects
- Depth/dwell incorporated for accurate countersinking+/- 0.001" (0.03mm)

OVERTORQUE

OVERLOAD FOR TORQUE THROUGH SHEAR PIN TRAIN

- Protects gears if torque is too high
- Longer gear head life
- Keeps tool weight down
- Can prevent drilling with damaged cutter
- Less hole defects

EXTRALIFE

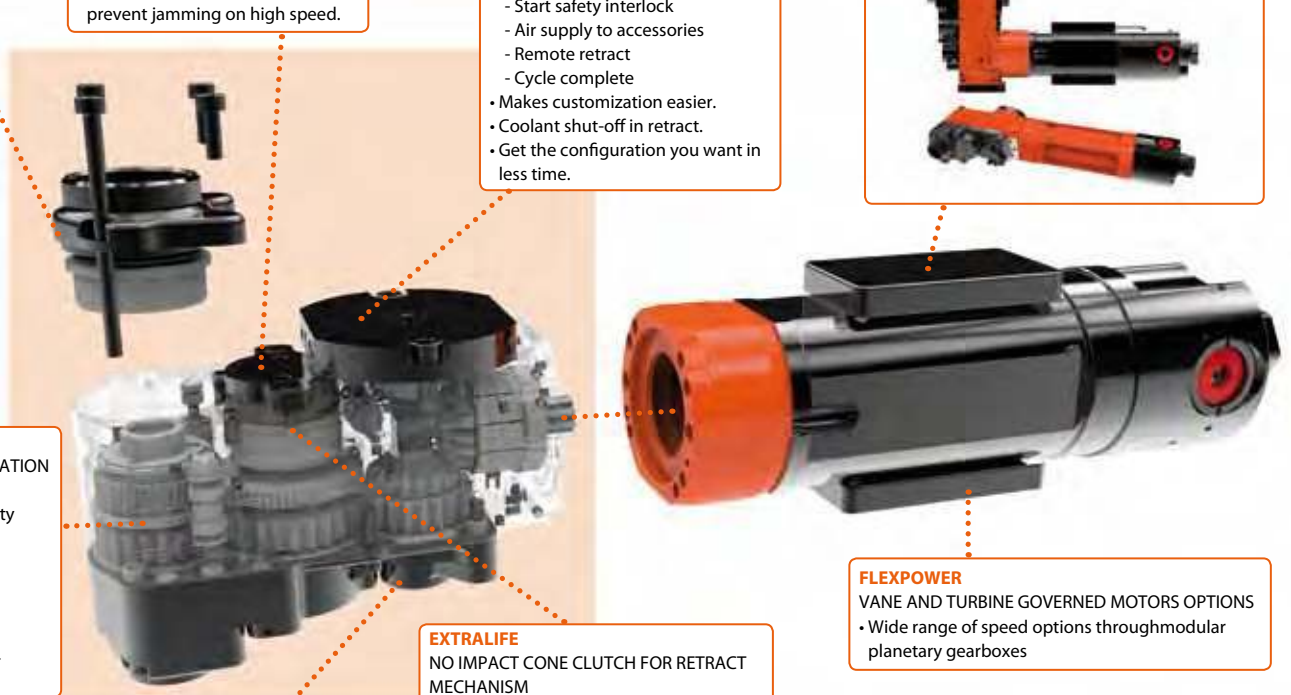
NO IMPACT CONE CLUTCH FOR RETRACT MECHANISM

- Improved reliability
- No impact, less servicing
- Easy access for servicing
- Lower service cost

FLEXPOWER

VANE AND TURBINE GOVERNED MOTORS OPTIONS

- Wide range of speed options through modular planetary gearboxes



Positive Feed Drilling Machine

20932/20952

DESCRIPTION

- Tools are available in a choice of In-line (20952) or Right Angle (20932) configuration.
- Utilizes spindles of varying lengths to provide range of hole depth capability.
- Choice of spindle attachment thread. (see chapter "D" Special Cutting Tools).
- Adjustable stroke.
- Rapid spindle retract.
- Spindle can be retracted at any point during feed cycle by depressing the manual return lever.
- Tool automatically shuts off on completion of drill cycle.
- Machine can be used with various accessories (see Options).



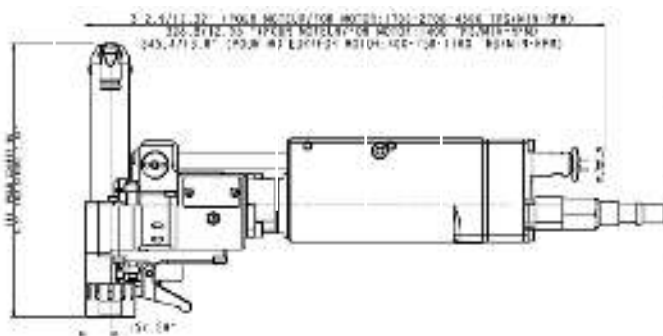
20932
with Concentric Collet
and Vacuum port

Model	Motor configuration	Std Stroke*		Std Spindle Speed Rpm	Std Feed/rotation		Accessories	Std Cutter / Spindle Attachment
		mm	in.		mm	in.		
20932	Right Angle	60	2,36"	400, 750, 1100, 1400, 1700, 2700, 4500	0,015	.0006	See Options	1/4" -28F 5/16"-24F 3/8"-24F
		40	1,58"		0,03	.0012		
		80	3,15"		0,05	.002		
		100	3,95"		0,07	.0028		
		120	4,72"		0,10	.004		
20952	In Line	60	2,36"	400, 750, 1100, 1400, 1700, 2700, 4500	0,015	.0006	See Options	1/4" -28F 5/16"-24F 3/8"-24F
		40	1,58"		0,03	.0012		
		80	3,15"		0,05	.002		
		100	3,95"		0,07	.0028		
		120	4,72'		0,10	.004		

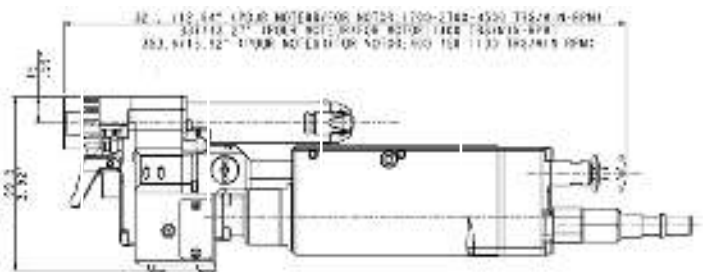
* alternative strokes on request

CONFIGURATIONS

20932



20952



TECHNICAL DATA

- Drill Application:** For wide range of Materials
- Motor power:** 1,2 HP
- Weight:** 4,63 lbs
- Max Length:** 13.92"
- Noise level:** Less than 80 dBA under load under load
- Air Inlet pressure:** 90 Psi

Positive Feed Drilling Machine

20942/20962

DESCRIPTION

- Tools are available in a choice of In-Line (20962) or Right Angle (20942) configuration.
- Utilizes spindles of varying lengths to provide a range of hole depth capability.
- Choice of spindle attachment thread. (see Chapter "D" Special Cutting Tools).
- Adjustable stroke.
- Rapid spindle retract.
- Spindle can be retracted at any point during feed cycle by depressing the manual return lever.
- Tool automatically shuts off on completion of drill cycle.
- Machine can be used with various accessories. (see Options)

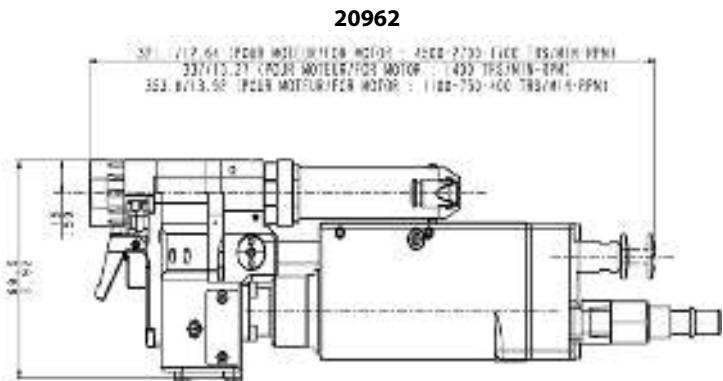
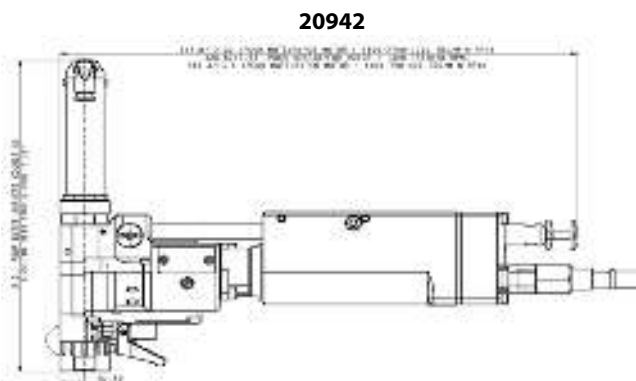


20962
with offset Concentric Collet and micropompe

Model	Motor configuration	Std Stroke*		Std Spindle Speed Rpm	Std Feed/rotation		Accessories	Std Cutter / Spindle Attachment
		mm	in.		mm	in.		
20942	Right Angle	60	2,36"	400, 750, 1100, 1400, 1700, 2700, 4500	0,015	.0006	See Options	1/4" -28F 5/16"-24F 3/8"-24F
		40	1,58"		0,03	.0012		
		80	3,15"		0,05	.002		
		100	3,95"		0,07	.0028		
		120	4,72"		0,10	.004		
20962	In Line	60	2,36"	400, 750, 1100, 1400, 1700, 2700, 4500	0,015	.0006	See Options	1/4" -28F 5/16"-24F 3/8"-24F
		40	1,58"		0,03	.0012		
		80	3,15"		0,05	.002		
		100	3,95"		0,07	.0028		
		120	4,72"		0,10	.004		

* alternative strokes on request

CONFIGURATIONS



TECHNICAL DATA

- Drill and Countersink application :** For wide range of Materials
- Motor power :** 1,2 HP
- Weight:** 4,63 lbs
- Max Length:** 13.89"
- Noise level:** Less than 80 dBA under load
- Air Inlet pressure:** 90 Psi
- Countersink precision:** ± .001"

EXPERT ADVICE

- Easy to use, designed for drilling, reaming and countersinking a wide range of materials.
- For use with Special Recoules Cutting Tools (see Chapter D).



Pneumatic Feed Drilling Machine

21500

DESCRIPTION

- Machine designed for precision Drilling and Countersinking at high speed.
- Precision spindle.
- Sealed hydraulic feedrate control.
- Micrometer depth stop adjustment
- Spring-loaded collar to ensure hole perpendicularity.
- Drill point lubricator for improved hole quality.
- Vacuum dust collection port for aluminium or composite materials (Optional).
- Recoules premium-quality cutters. (see Chapter "D" Special Cutting Tools).

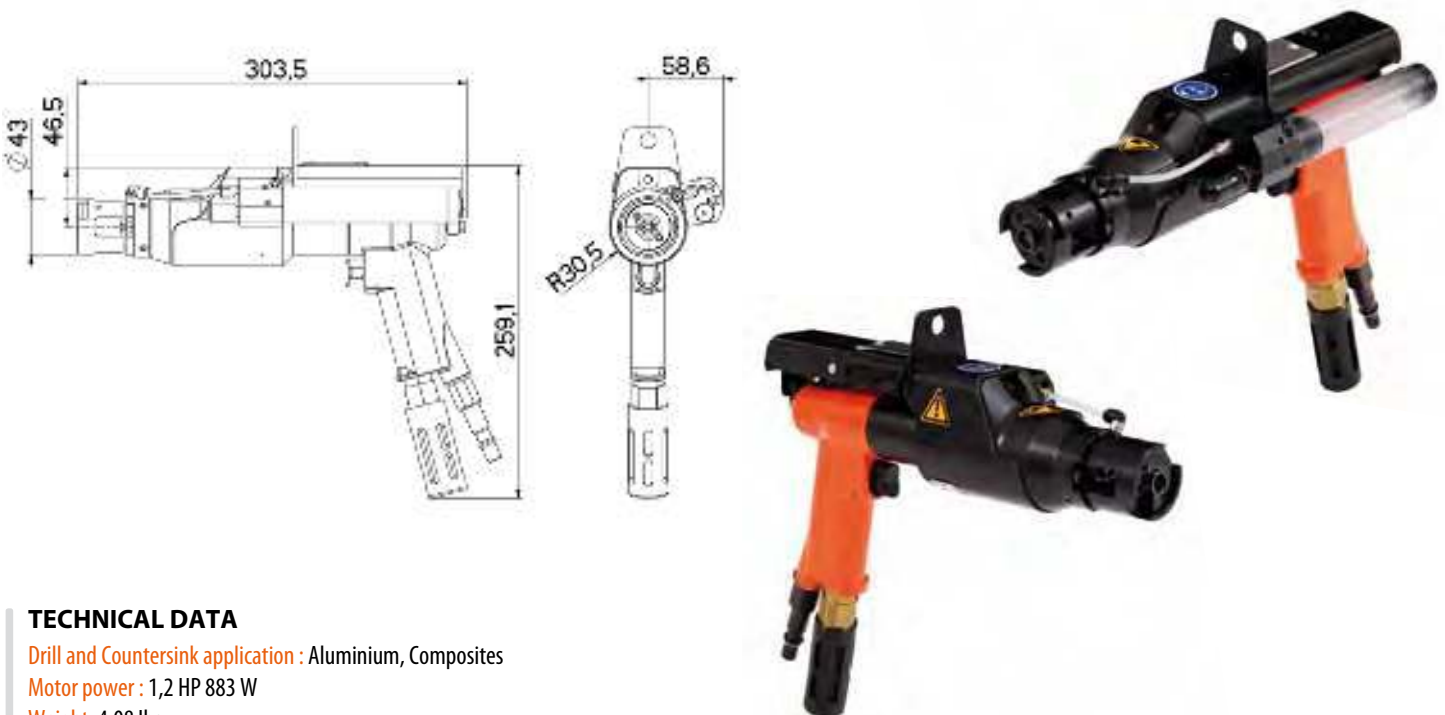


Model	Motor configuration	Std Stroke*		Std Spindle Speed Rpm	Feed	Std Cutter / Spindle Attachment
		mm	In.			
21500	Pistol Grip	25,4	1"	15000	Pneumatically assisted - Regulated by hydraulic feed unit	M6 x 100*

* Cutter specification



CONFIGURATIONS



TECHNICAL DATA

Drill and Countersink application : Aluminium, Composites

Motor power : 1,2 HP 883 W

Weight: 4,08 lbs

Max Length: 11.8"

Noise level: Less than 80 dBA under load

Countersink precision: ± .002"

EXPERT ADVICE

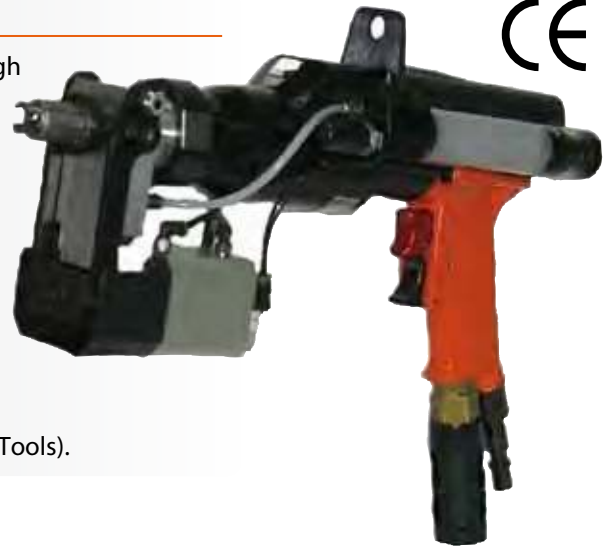
- We recommend the use of Recoules premium quality cutters to ensure precision drilling/countersinking.

Pneumatic Feed Drilling Machine with Concentric Collet

21502

DESCRIPTION

- Machine is designed for precision Drilling and Countersinking at high speed.
- Precision spindle.
- Sealed hydraulic feedrate control
- Micrometer depth stop adjustment
- Drill point lubricator for improved hole quality.
- Vacuum dust collection port for aluminium or composite materials (Optional).
- Concentric Collet clamping system.
- Double trigger for clamping and starting the tool.
- Recoules premium-quality cutters (see heading "D" special Cutting Tools).



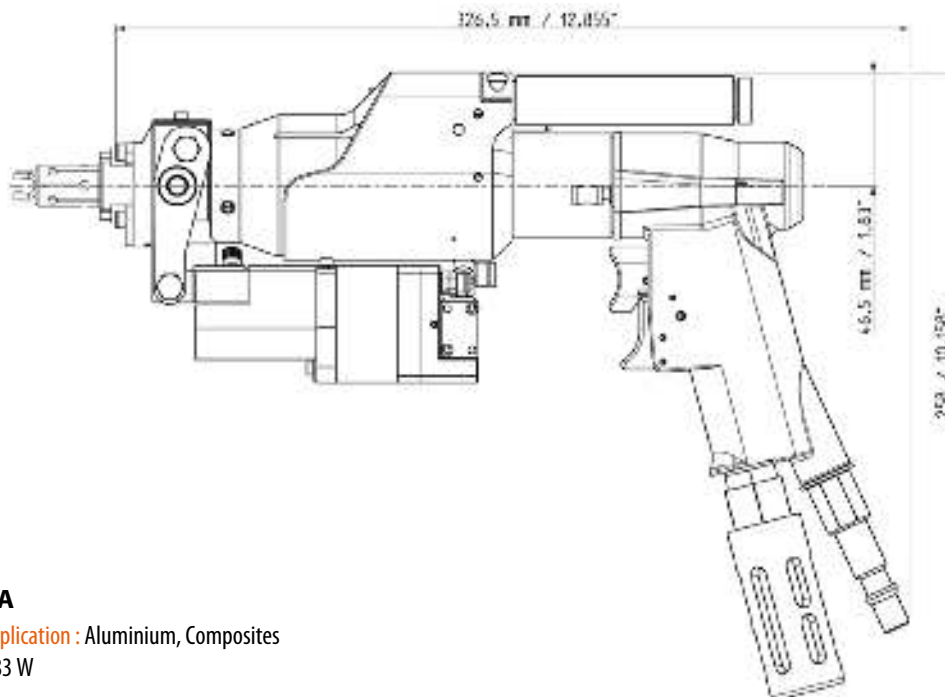
B

Model	Motor configuration	Std Stroke*		Std Spindle Speed Rpm	Feed	Std Cutter / Spindle Attachment
		mm	In.			
21502	Pistol Grip	25,4	1"	15000	Pneumatically assisted - Regulated by hydraulic feed unit	M6 x 100*

* Cutter specification



CONFIGURATIONS



TECHNICAL DATA

Drill and Countersink application : Aluminium, Composites

Motor power : 1,2 HP 883 W

Weight: 4,08 lbs

Max Length: 11.8"

Noise level: Less than 80 dBA under load

Countersink precision: ± 0.02"

EXPERT ADVICE

- We recommend the use of Recoules premium quality cutters to ensure precision drilling/countersinking.

ACCU-LUBE Micro-lubrication

BENEFITS

- The production costs can be significantly reduced by the use of micro lubrication.
- The reduction of friction and the resulting increase of productivity will allow a more economical processing of workpieces.
- Shorter machine down time by increase of tool life.
- Reduction of disposal costs due to almost dry chips.
- No extra installation for the operation of coolants required - therefore additional saving of energy costs.

Outside Lubrication Applicator equipped with brass pumps



- 1 **Switch**
ON / OFF switch. Optionals: solenoid valve, toggle switch, roller valve, drawer distributor.
- 2 **Air control valve**
Regulates the air outlet at the nozzle. Each aluminum pump has its own air control valve which can be used independently.
- 3 **Graduation scale of the amount of Lubricant**
The adjustment screw regulates the amount of Lubricant necessary.
- 4 **Frequency Generator**
Checking the pump cycle frequency. Pneumatic pulse generator: 5-180 Strokes / minute. Generator electrical frequency: 1-128 Strokes / minute. Solenoid: freely programmable.
- 5 **Metal Housing**
- 6 **Mounting System**
Pre-drilled holes for fixed installation of the applicator on the machine tool or to schedule are magnets on the metal housing.
- 7 **Air supply**
Input pressure: min. 4 bar, max. 10 bar.
- 8 **Air Filter**
- 9 **Tank**
Capacity: 0.3 L; 1 L, 2 L, 3 L also available with level indicator.
- 10 **Nozzles**
Nozzles and circular saw tape, copper nozzles, steel and Loc-line, flexible metal nozzles, rotating nozzles and special nozzles.
- 11 **Lubricant**

Copper / steel nozzles with adjusting block



Rotative nozzles



Nozzles tips



Special Nozzles



Accu-Lube Mini Booster MB 2010 « Mini » SR

For tools with oil hole which diameter are 1 - ≤12 mm or maximum 2X6 mm

TECHNICAL DATA

Operating current : 24 V CC 2W (optional: 110V, 230V).

Operating pressure : 5.5 - 9 bars.

Reservoir : 500 - 750 ml (optional 950 / 1.400 ml).



ACCU-LUBE Lubricants

Accu-Lube Lubricants – harm neither operators nor the environment

- Accu-Lube Lubricants which do not leave any stains on the material after post heat treatment.
- The following Accu-Lube lubricants are especially appropriate for processing of ferrous material. Should these Accu-Lube lubricants be used on non-ferrous material, it must be degreased prior to post heat treatment in order to avoid stains on the material.

Processing areas	LUBRICANT							
	LB 2000	LB 5000	LB 6000	LB 5500	LB 4500	LB 4000	LB 8000	LB 10000
All Metallic Materials	✓	✓	✓	✓	✓	✓	✓	✓
Pin+V-Block lubricity test	1.750	1.000	1.250	900	1.250			1.750
Flash point	>300°C	>160°C	214°C	>160°C	191°C	214°C	310°C	>250°C
Pour point	-8° - -5°C	2° - 7°C	-20°C	0° - 3°C	4°C	-20°C	ca. -20°C	<0°C
Viscosity at 40°C	35	18,0	12	20	5	12	36	35
Suitable for Booster system	-	✓	✓	✓	-	✓	(✓)	-

Quantity	ITEM N°							
	LB 2000	LB 5000	LB 6000	LB 5500	LB 4500	LB 4000	LB 8000	LB 10000
1 litre	70501005	70501205	70501405	70501705	70501905	70501305	70501805	70501505
5 litres	70501010	70501210	70501410	70501710	70501910	70501310	70501810	70501510
20 litres	70501035	70501235	70501435	70501735	70501935	70501335	70501835	70501535
205 litres	70501040	70501240	70501440	70501740	70501940	70501340	70501840	70501540

CHARACTERISTICS OF THESE LUBRICANTS

LB 2000	For light to heavy cutting operations Accu-Lube LB 2000 - is manufactured out of natural, highly refined triglycerids
LB 5000	For medium to heavy cutting operations
LB 6000	For light to medium-heavy cutting operations Accu-Lube LB 6000
LB 5500	For light to medium-heavy cutting operations
LB 4500	For light cutting operations. Accu-Lube LB 4500 consists of natural ingredients. It is especially appropriate for working in aluminium. Accu-Lube LB 4500 is conditionally suitable for post heat treatment.
LB 4000	For light to medium-heavy cutting operations Accu-Lube LB 4000 is based on natural fatty acids.
LB 8000	For light to medium-heavy cutting operations Accu-Lube LB 8000 – is a mixture of natural ingredients.
LB 10000	For light to medium-heavy cutting operations Accu-Lube LB 8000 is manufactured out of natural, refined triglycerids.

The following Accu-Lube lubricants in solid and paste-like form are especially appropriate for manual application:

Item no.	Description
70501016	ACCU-LUBE LB 5000 Paste (gel 255 g)
70501015	ACCU-LUBE LB 5000 Paste (solide 255 g)
70501025	ACCU-LUBE LB 5000 Solid Block (71 g)
70501030	ACCU-LUBE LB 5000 Solid Stick (62 g)
70501032	ACCU-LUBE LB 5000 Solid Stick (368 g)
70501060	ACCU-LUBE LB 2000 Spray (222 g)
70501360	ACCU-LUBE LB 4000 Spray (222 g)
70501260	ACCU-LUBE LB 5000 Spray (222 g)
70501760	ACCU-LUBE LB 5500 Spray (222 g)
70501560	ACCU-LUBE LB 10000 Spray (222 g)

Tool Life (According to conditions specified in the manual of user)

Conventional System

80 bores

Accu-Lube

600 bores



B

Vibratory system for ADE

DESCRIPTION

■ How the vibratory system works?

A small coaxial vibration combined with constant ADE feed generate the chip fragmentation allowing a better chip extraction. This vibration is created by a simple mechanical device. The frequency of the vibration is defined in function of the application.

BENEFITS

- Small chips generation whatever drilling condition.
- Excellent chips extraction.
- No risk of spoiled surface due to long chip extraction.
- No overload for torque and thrust during drilling operation.
- Predictive tool life cycle thanks to constant sollicitations.
- Potential tool life extension.
- Good lubrication and cooling thanks to cut discontinuity.



Compatible ADES with integrated MITIS™ option

A1V/A1T

20932/42

20952/62

Non Fragmented chips



Fragmented chips



Advanced Drilling Equipment (ADE)

Options

Accessories	Description	ADE Model		
		20932 20952	20942 20962	A14V /A14T A16T/A16V
Booster	 Actual power with booster: 1,3 CV - 1,3 HP Achievable speeds when booster fitted: 1300 Rpm on a basic motor of 1100 Rpm 1600 Rpm on a basic motor of 1400 Rpm 2000 Rpm on a basic motor of 1700 Rpm 3200 Rpm on a basic motor of 2700 Rpm	✓	✓	-
Bayonet clamping with vacuum	 Bayonet clamping system with vacuum extraction port.	✓	-	✓
Crowfoot	 Offset heads for difficult access. Only for right angle.	✓	✓	✓
Telescopic spindle	 Telescopic spindle for difficult access.	-	-	✓
Valve	 Supply valve.	-	-	✓
Dasa	 DASA attachment for big diameters and long thickness.	-	-	✓
Electronic counter	 Electronic cycle counter programmable for increasing or decreasing count. Pre-selection and flashing signal.	✓	✓	✓
Pneumatic counter	 Pneumatic counter with no additional power supply.	✓	✓	✓
Cutting Tools	 Special Recoules Cutting Tools.	✓	✓	✓
Micro pump	 Accurate adjustment of lubricant and Air Flow.	✓	✓	✓
Pistol handle	 Ergonomic pistol handle with one trigger.	✓	✓	✓
Pistol handle with double trigger	 Ergonomic pistol handle with double trigger (clamp and cycle start).	✓	✓	✓
Concentric Collet	 Concentric Collet with optional vacuum system Reduced size and weight.	✓	✓	✓
C-Clamping	 C-Clamping attachment for limited access.	✓	-	-
Adaptive	 Allows to adjust the speed in function of the material. Big productivity improvement expected.	✓	✓	✓

B

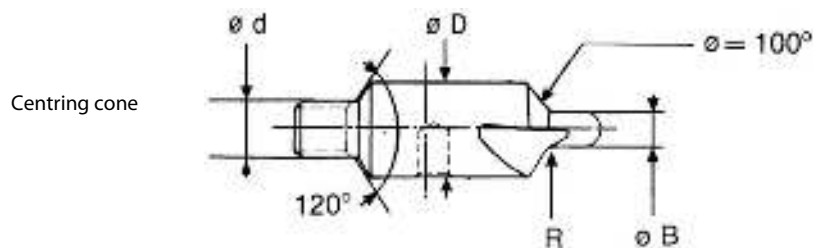
Cutters With Inserted Pilot For Rivets and Screws

**CARBIDE
HSS-E**



For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot Ø B		Radius R mm	Numbers of flutes	Thread Ø d	Cutter ref. HSS-E	Cutter ref. CARBIDE	
		-0,02 mm -0,05 mm	-.0007 in. -.0020 in.						
RB156	10	2,38	0,0937	0,2-0,4	3	M6x1	31206000	-	
	10	2,50	0,0984	0-0,25	3	M6x1	-	02504028PT	
	10	3,00	0,1181	0,45-0,65	3	M6x1	-	02504029PT	
	10	3,162	0,1245	0-0,25	3	M6x1	-	02504067PT	
	10	3,17	0,1248	0,2-0,4	3	M6x1	31206005	-	
	10	3,50	0,1378	0,2-0,4	3	M6x1	31206010	-	
	10	3,60	0,1417	0,2-0,4	3	M6x1	31206015	-	
	RB206	10	3,97	0,1563	0,2-0,4	3	M6x1	31206020	-
	RB256	10	4,00	0,1575	0,2-0,4	3	M6x1	31206025	-
	10	4,00	0,1575	0,45-0,65	3	M6x1	-	02504030PT	
	RB257	10	4,10	0,1614	0,55-0,75	3	M6x1	-	02504061PT
	RB258	10	4,15	0,1634	0,2-0,4	3	M6x1	31206030	-
		10	4,76	0,1874	0,4-0,75	3	M6x1	31206035	-
		10	4,80	0,1890	0,4-0,75	3	M6x1	31206040	-
		10	4,80	0,1890	0,55-0,75	3	M6x1	-	02504064PT
		10	4,95	0,1949	0,55-0,75	3	M6x1	-	02504062PT
10		5,60	0,2205	0,4-0,75	3	M6x1	31206045	-	
10		6,22	0,2449	0,4-0,75	3	M6x1	-	02504069PT	
RB306		14	4,76	0,1874	0,4-0,75	3	M8x1	31206100	-
		14	5,00	0,1969	0,4-0,75	3	M8x1	31206105	-
		14	5,00	0,1969	0,55-0,75	3	M8x1	-	02504031PT
	14	5,50	0,2165	0,55-0,75	3	M8x1	-	02504032PT	
	14	5,60	0,2205	0,4-0,75	3	M8x1	31206110	-	
	14	6,00	0,2362	0,4-0,75	3	M8x1	31206120	-	
	14	6,00	0,2362	0,55-0,75	3	M8x1	-	02504033PT	
	14	6,35	0,2500	0,4-0,75	3	M8x1	31206125	-	
	14	6,50	0,2559	0,55-0,75	3	M8x1	-	02504034PT	
	RB307	17	8,00	0,3150	0,75-1,25	3	M8x1	31206200	-
		21	8,00	0,3150	0,8-1,00	3	M8x1	-	02504035PT
		21	8,50	0,3346	0,8-1,00	3	M8x1	-	02504036PT
21		9,52	0,3748	0,75-1,25	3	M8x1	31206300	-	
21		10,00	0,3937	0,75-1,25	3	M8x1	31206305	-	
RB406 RB356HP58	25,4	10,00	0,3937	0,8-1,00	3	M10x1	-	02504037PT	
	25,4	12,00	0,4724	1-1,25	3	M10x1	-	02504038PT	



EXPERT INFO

• In some cases, microstop cages are impractical or too bulky to be used. Then Recoules recommends to use drilling adaptors (see chapter F).



Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°,...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

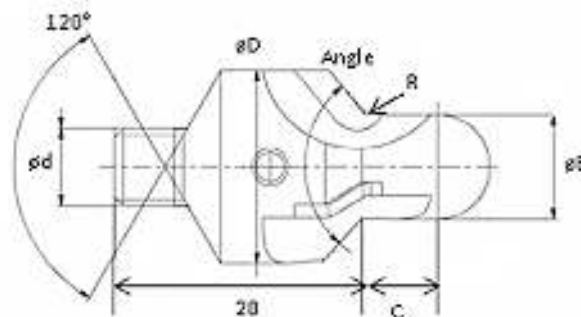
Cutters With Inserted Pilot For Rivets and Screws

HSS-PCD



For use with	Aluminium	Steel	Titanium	Composite
HSS-PCD				

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot Ø B		Radius R mm	Numbers of flutes	Angle	Thread Ø d	Pilot Ø C	Cutter ref. HSS-PCD
		-0,02 mm -0,05 mm	-0,007 in. -0,0020 in.						
RB156 RB206 RB256 RB257 RB258	10	2,5	0,0984	0,2/0,4	2	100°	M6x100	2,4	02084019PT
	10	3	0,1181	0,2/0,4	2	100°	M6x100	3,1	02084021PT
	10	3,2	0,1260	0,2/0,4	2	100°	M6x100	3,1	02084020PT
	10	3,5	0,1378	0,2/0,4	2	100°	M6x100	3,7	02084022PT
	10	4	0,1575	0,2/0,4	2	100°	M6x100	4	02084023PT
	10	4,8	0,1890	0,4/0,75	2	100°	M6x100	4,7	02084032PT
	10	5	0,1969	0,4/0,75	2	100°	M6x100	4,7	02084026PT
RB306 RB307	14	3,89	0,1531	0,64/0,84	2	100°	M8x100	5,06	02084035PT
	14	4,15	0,1634	0,64/0,84	2	100°	M8x100	4,93	02084030PT
	14	4,81	0,1894	0,75/0,95	2	100°	M8x100	4,6	02084031PT
	14	5,04	0,1984	0,75/0,95	2	100°	M8x100	4,48	02084029PT
	14	6	0,2362	0,4/0,75	2	120°	M8x100	5	02084208PT
	14	6,6	0,2598	0,75/1,25	2	100°	M8x100	5	02084027PT



EXPERT INFO

• In some cases, microstop cages are impractical or too bulky to be used. Then Recoules recommends to use drilling adaptors (see chapter F).

Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°, ...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

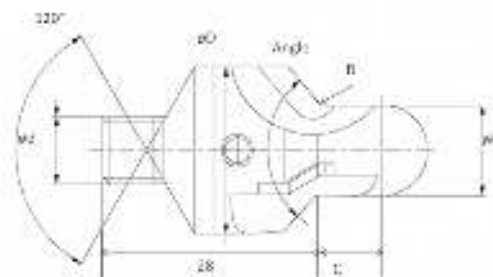
Cutters With Solid Pilot For Rivets and Screws

CARBIDE-PCD



For use with	Aluminium	Steel	Titanium	Composite
CARBIDE PCD				

Microstop cage ref Chapter A	Cutter Ø D ±0,1 mm	Pilot ØB		Radius R mm	Numbers of flutes	Angle	Thread Ø d	Pilot Ø C	Ref. Cutter CARBIDE PCD
		-0,02 mm -0,05 mm	- .0007 in. -.0020 in.						
RB156 RB206 RB256 RB257 RB258	12	4,82	0,190	0,5/0,7	2	100°	M6x100	6,6	02084001PT
RB306 RB307	12	4,82	0,1898	0,5/0,7	2	130°	M8x100	6,6	02084008PT
	14	5,54	0,2181	0,5/0,7	2	130°	M8x100	7,2	02084009PT
	14	6,34	0,2496	0,5/0,7	2	100°	M8x100	6,8	02084003PT
	17	7,93	0,3122	0,8/1	2	100°	M8x100	7	02084004PT
	17	9,51	0,3744	0,8/1	2	100°	M8x100	7,25	02084005PT
	21	7,93	0,3122	0,8/1	2	130°	M8x100	11	02084014PT
	21	9,52	0,3748	0,8/1	2	130°	M8x100	13,24	02084016PT
RB406 RB356HP58	21	11,11	0,4374	1,1/1,3	3	100°	M10x100	7,5	02084006PT
	22,2	12,67	0,4988	1,1/1,3	3	100°	M10x100	7,7	02084007PT
	25	14,27	0,5618	1,1/1,3	3	100°	M10x100	7,9	02084010PT



EXPERT INFO

• In some cases, microstop cages are impractical or too bulky to be used. Then Recoules recommends to use drilling adaptors (see chapter F).

Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°, ...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

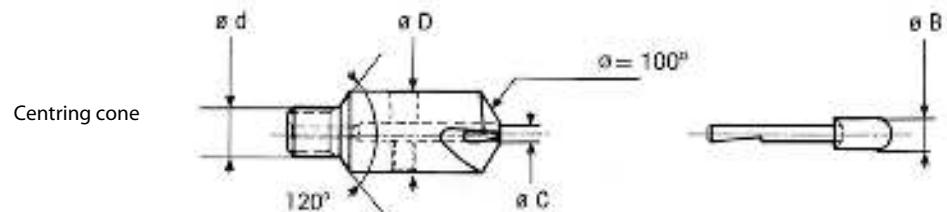
Cutters With Inserted Pilot For Rivets and Screws

HSS-E



For use with	Aluminium	Steel	Titanium	Composite	Kevlar
CARBIDE	⊗	⊗	⊗	⊗	
HSS-E	⊗	⊗	⊗		
PCD*				⊗	
HSS-E					⊗
CARBIDE					⊗

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot			Numbers of flutes	Thread Ø d	Cutter + pilot ref. HSS-E	Cutter only ref. HSS-E
		Head Ø B		Shank Ø C mm				
		-0,02 mm -0,05 mm	-0,0007 in. -0,0020 in.					
RB 156 RB 206 RB 256 RB 257 RB 258	10	2,00	.0787	2	2	M6 x 1	30220005	30220001
	10	2,38	.0937	2	2	M6 x 1	30220010	30220001
	10	2,50	.0984	2	2	M6 x 1	30220015	30220001
	10	2,80	.1102	2,5	2	M6 x 1	30220110	30220101
	10	3,00	.1181	2,5	2	M6 x 1	30220115	30220101
	10	3,17	.1248	2,5	2	M6 x 1	30220120	30220101
	10	3,50	.1377	2,5	2	M6 x 1	30220215	30220101
	10	4,00	.1574	3,5	2	M6 x 1	30220310	30220301
	10	4,15	.1634	3,5	2	M6 x 1	30220315	30220301
RB 306 RB 307	14	4,76	.1874	4	2	M8 x 1	30222015	30222001
	14	4,80	.1890	4	2	M8 x 1	30222025	30222001
	14	5,00	.1968	4	2	M8 x 1	30222030	30222001
	14	5,60	.2204	4	2	M8 x 1	30222040	30222001
	14	6,00	.2362	4	2	M8 x 1	30222050	30222001
	14	6,35	.2500	4	2	M8 x 1	30222055	30222001
	17	7,94	.3126	5	3	M8 x 1	30223035	30223001
	17	8,00	.3149	5	3	M8 x 1	30223040	30223001
	21	9,52	.3748	5	3	M8 x 1	30224045	30224001
	21	10,00	.3937	5	3	M8 x 1	30224050	30224001



EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (see chapter F).
- For microstop cages selection, (refer to chapter A).

Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°, ...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

Cutters With Inserted Pilot For Rivets and Screws

PCD*



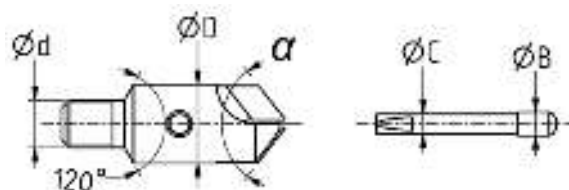
For use with	Aluminium	Steel	Titanium	Composite	Kevlar
CARBIDE					
HSS-E					
PCD*					
HSS-E					
CARBIDE					

ADVANTAGES

- High quality PCD inserts provide superior surface finish to composite materials requiring minimal effort from the operator.
- Superior characteristics of PCD ensure cutters with extended life.

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot			Numbers of flutes	Thread Ø d	Countersinking Angle α	Cutter + pilot ref. PCD*	Cutter only ref. PCD*
		Head Ø B		Shank Ø C mm					
		-0,02 mm -0,05 mm	.0007 in. -.0020 in.						
RB 156 RB 206 RB 256 RB 257 RB 258	10	2,40	.0945	2	2	M6 x 1	100°	30500311	30500300
	10	3,00	.1181	2,5	2	M6 x 1	100°	30500055	30500000
	10	3,17	.1248	2,5	2	M6 x 1	100°	30500060	30500000
	10	3,50	.1377	2,5	2	M6 x 1	100°	30500065	30500000
	10	4,00	.1574	2,5	2	M6 x 1	100°	30500070	30500000
	10	4,00	.1574	2,5	2	M6 x 1	130°	30503060	30503060
	10	4,15	.1634	2,5	2	M6 x 1	100°	30500075	30500000
	14	-	-	2,5	2	M6 x 1	130°	-	02500591PT
RB 306 RB 307	14	-	-	3,5	2	M6 x 1	130°	-	02500592PT
	14	-	-	2,5	2	M8 x 1	130°	-	02500593PT
	14	-	-	3,5	2	M8 x 1	130°	-	02500586PT
	14	4,10	.0614	4	2	M8 x 1	130°	30503166	30503160
	14	4,76	.1874	4	2	M8 x 1	100°	30500105	30500100
	14	4,80	.1890	4	2	M8 x 1	100°	30500110	30500100
	14	4,80	.1890	4	2	M8 x 1	130°	30502160	30503160
	14	5,00	.1968	4	2	M8 x 1	100°	30500115	30500100
	14	5,10	.2007	4	2	M8 x 1	130°	30503165	30503160
	14	5,60	.2204	4	2	M8 x 1	100°	30500120	30500100
	14	6,00	.2362	4	2	M8 x 1	100°	30500125	30500100
	14	6,35	.2500	4	2	M8 x 1	100°	30500130	30500100
	21	7,00	.2756	5	3	M8 x 1	100°	30500203	30500200
	21	7,94	.3126	5	3	M8 x 1	100°	30500205	30500200
	21	8,00	.3149	5	3	M8 x 1	100°	30500210	30500200
	21	9,52	.3748	5	3	M8 x 1	100°	30500215	30500200
	21	10,00	.3937	5	3	M8 x 1	100°	30500220	30500200
	21	-	-	5	3	M8 x 1	130°	-	30503260

Centring cone



EXPERT INFO

- Recoules informs you that our PCD cutters can be resharpened **3 to 4 times**.

Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°,...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

Cutters With Inserted Pilot For Rivets and Screws

Tungsten Carbide

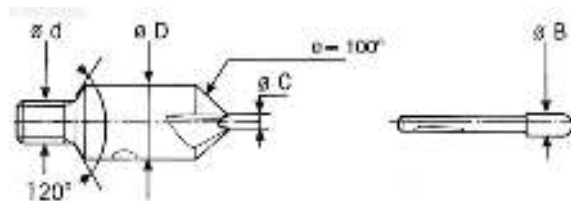


For use with	Aluminium	Steel	Titanium	Composite	Kevlar
CARBIDE	⊗	⊗	⊗	⊗	
HSS-E	⊗	⊗	⊗		
PCD*				⊗	
HSS-E					⊗
CARBIDE					⊗

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot		Shank Ø C mm	Numbers of flutes	Thread Thread Ø d	Cutter + pilot ref. CARBIDE	Cutter only ref. CARBIDE
		Head Ø B						
		-0,02 mm -0,05 mm	-.0007 in. -.0020 in.					
RB 156 RB 206 RB 256 RB 257 RB 258	10	2,00	.0787	2	3	M6 x 1	30320005	30320000
	10	2,38	.0937	2	3	M6 x 1	30320010	30320000
	10	2,50	.0984	2	3	M6 x 1	30320015	30320000
	10	2,80	.1102	2,5	3	M6 x 1	30320110	30320100
	10	3,00	.1181	2,5	3	M6 x 1	30320115	30320100
	10	3,17	.1248	2,5	3	M6 x 1	30320120	30320100
	10	3,50	.1377	2,5	3	M6 x 1	30320215	30320100
	10	4,00	.1574	3,5	3	M6 x 1	30320310	30320300
	10	4,15	.1634	3,5	3	M6 x 1	30320315	30320300
RB 306 RB 307	14	4,76	.1874	4	3	M8 x 1	30322015	30322000
	14	4,80	.1890	4	3	M8 x 1	30322025	30322000
	14	5,00	.1968	4	3	M8 x 1	30322030	30322000
	14	5,60	.2204	4	3	M8 x 1	30322040	30322000
	14	6,00	.2362	4	3	M8 x 1	30322050	30322000
	14	6,35	.2500	4	3	M8 x 1	30322055	30322000
	17	7,94	.3126	5	3	M8 x 1	30323035	30323000
	17	8,00	.3149	5	3	M8 x 1	30323040	30323000
	21	9,52	.3748	5	2	M8 x 1	30324045	30324000
	21	10,00	.3937	5	2	M8 x 1	30324050	30324000



Centring cone



EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (see chapter F).
- For microstop cages selection, (refer to chapter A).

Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°,...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

Cutters With Inserted Pilot For Rivets and Screws

HSS-E

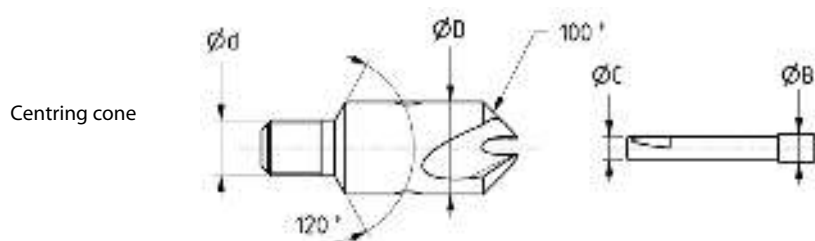


For use with	Aluminium	Steel	Titanium	Composite	Kevlar
CARBIDE					
HSS-E					
PCD*					
HSS-E					
CARBIDE					

ADVANTAGES

- Unique cutter geometry provides excellent surface finish and prevents tearing of fibres.

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot			Numbers of flutes	Thread Ø d	Cutter + pilot ref. HSS-E	Cutter only ref. HSS-E
		Head Ø B		Shank Ø C mm				
		-0,02 mm -0,05 mm	-.0007 in. -.0020 in.					
RB 156 RB 206 RB 256 RB 257 RB 258	10	3,00	.1181	2,5	2	M6 x 1	30600010	30600001
	10	3,17	.1248	2,5	2	M6 x 1	30600015	30600001
	10	3,50	.1377	2,5	2	M6 x 1	30600020	30600001
	10	4,00	.1574	2,5	2	M6 x 1	30600025	30600001
	10	4,15	.1634	2,5	2	M6 x 1	30600030	30600001
RB 306 RB 307	14	4,80	.1890	4	2	M8 x 1	30600110	30600101
	14	5,00	.1968	4	2	M8 x 1	30600115	30600101
	14	6,00	.2362	4	2	M8 x 1	30600120	30600101
	14	6,35	.2500	4	2	M8 x 1	30600125	30600101



Centring cone

EXPERT INFO

- Alternative pilots may be manufactured on request.
e.g. : special diameters and lengths.

Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°, ...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

Cutters With Inserted Pilot For Rivets and Screws

**TUNGSTEN
CARBIDE**

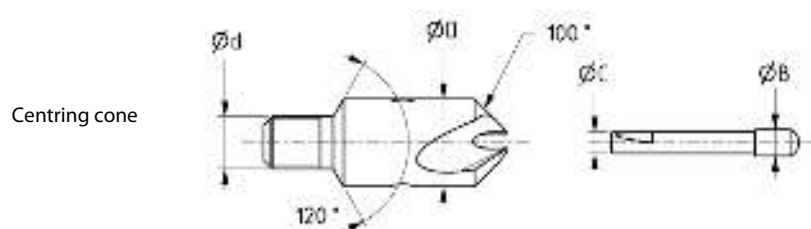


For use with	Aluminium	Steel	Titanium	Composite	Kevlar
CARBIDE	⊗	⊗	⊗	⊗	
HSS-E	⊗	⊗	⊗		
PCD*				⊗	
HSS-E					⊗
CARBIDE					⊗

ADVANTAGES

- Unique cutter geometry provides excellent surface finish and prevents tearing of fibres.

Microstop cage ref Chapter A	Cutter Ø D ± 0,1 mm	Pilot		Shank Ø C mm	Numbers of flutes	Thread Ø d	Cutter + pilot ref. CARBIDE	Cutter only ref. CARBIDE
		Head Ø B						
		-0,02 mm -0,05 mm	-0.0007 in. -0.0020 in.					
RB 156 RB 206 RB 256 RB 257 RB 258	10	3,00	.1181	2,5	2	M6 x 1	30601010	30601001
	10	3,17	.1248	2,5	2	M6 x 1	30601015	30601001
	10	3,50	.1377	2,5	2	M6 x 1	30601020	30601001
	10	4,00	.1574	2,5	2	M6 x 1	30601025	30601001
	10	4,15	.1634	2,5	2	M6 x 1	30601030	30601001
RB 306 RB 307	14	4,80	.1890	4	2	M8 x 1	30601110	30601101
	14	5,00	.1968	4	2	M8 x 1	30601115	30601101
	14	6,00	.2362	4	2	M8 x 1	30601120	30601101
	14	6,35	.2500	4	2	M8 x 1	30601125	30601101



Centring cone

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (see chapter F).
- For microstop cages selection, (refer to chapter A).



Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°, ...)
- carbide, HSS-E or PCD*

* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

Spotfacing Cutters

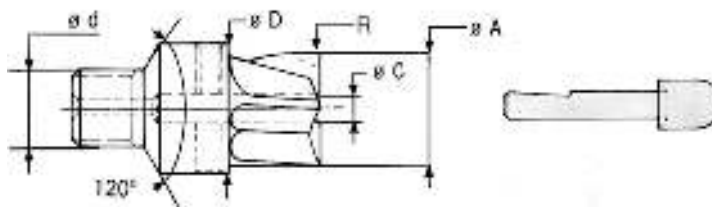
With pilot Insert



For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

Microstop cage ref Chapter A	Ø Spotfacing dia		Cutter's body Ø D mm	Shank du Pilot Ø C mm	Number of Flutes	Thread Ø d	Cutter ref. HSS-E R = 0 mm	Cutter ref. HSS-E R = 1 mm	Cutter ref. HSS-E R = 2 mm	Cutter ref. CARBIDE R = 0 mm
	mm	Inch								
RB 156 RB 206 RB 256 RB 257 RB 258	5	.1968	10	2	4	M6 x 1	31000000	31001002	-	-
	6	.2362	10	2	4	M6 x 1	31000005	31001007	-	-
	7	.2755	10	2	4	M6 x 1	31000010	31001012	-	-
	8	.3149	10	2	4	M6 x 1	31000015PT	31001017	-	-
	9	.3543	10	2	4	M6 x 1	31000020	31001022	-	-
RB 306 RB 307	10	.3937	10	2	4	M6 x 1	31000025	31001030	-	02506010PT
	11	.4330	11	3	4	M8 x 1	31000100PT	31001101	31001103	-
	12	.4724	12	3	4	M8 x 1	31000105	31001106	31001108	02506012PT
	13	.5118	13	3	4	M8 x 1	31000110	31001111	31001113	02506013PT
	14	.5511	14	3	4	M8 x 1	31000115	31001120	31001130	02506014PT
	15	.5905	15	4	4	M8 x 1	31000200PT	31001201	31001203	02506015PT
	16	.6299	16	4	4	M8 x 1	31000205	31001206	31001208	02506016PT
	17	.6692	17	4	4	M8 x 1	31000210	31001215	31001225	02506017PT
	18	.7086	18	4	4	M8 x 1	31000300PT	31001301	31001303	02506018PT
	19	.7480	19	4	4	M8 x 1	31000305	31001306	31001308	02506019PT
	20	.7874	20	4	4	M8 x 1	31000310	31001311	31001313	02506020PT
RB 406	21	.8267	21	4	4	M8 x 1	31000315	31001320	31001330	02506021PT
	22	.8661	22	5	4	M10 x 1	31000400PT	31001401	31001404	-
	24	.9448	24	5	4	M10 x 1	31000410	31001413	31001420	-
	25,4	1.000	25,4	5	4	M10 x 1	31000500PT	31001501	31001503	-
	26	1.0236	26	5	4	M10 x 1	31000505	31001506	31001508	-
	28	1.1023	28	5	4	M10 x 1	31000510	31001511	31001513	-
	30	1.1811	30	5	4	M10 x 1	31000520	31001521	31001523	-
38,1	1.5000	38,1	5	4	M10 x 1	31000600PT	31001610	31001620	-	

Centring cone



EXPERT INFO

Alternative cutters exemple :

- Combined carbide cutter chamfer + counterbore



Alternative cutters can be made on request with :

- special diameters
- special thread (ex : 1/4-28F, M10x1,...)
- special angles (ex : 90°, 120°, ...)
- carbide, HSS-E or PCD*

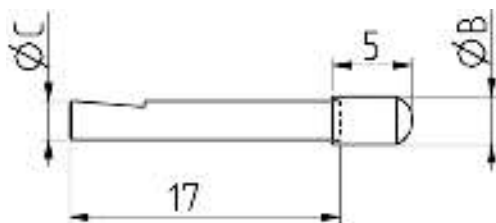
* Only to use only with pilots having a head dia ≥ shank dia + 0,5 mm (.0196").

Standard Sizes for Pilots

Head Ø B		Shank Ø C mm	Pilot Ref.
-0,02 mm -0,05 mm	-.0007 in. -.0020 in.		
2,00	.0787	2	31100000
2,38	.0937	2	31100005
2,40	.0944	2	31100006
2,45	.0964	2	31100009
2,50	.0984	2	31100010
3,00	.1181	2	31100020
3,17	.1248	2	31100025
3,20	.1259	2	31100024
3,50	.1377	2	31100030
4,00	.1574	2	31100035
4,80	.1890	2	31100056
2,50	.0984	2,5	31100100
2,80	.1102	2,5	31100105
3,00	.1181	2,5	31100110
3,17	.1248	2,5	31100115
3,20	.1259	2,5	31100114
3,50	.1377	2,5	31100120
3,60	.1417	2,5	31100122
4,00	.1574	2,5	31100130
4,15	.1634	2,5	31100131
4,40	.1732	2,5	31100138
4,46	.1755	2,5	03590513PT
4,60	.1811	2,5	31100142
4,76	.1874	2,5	31100145
4,80	.1890	2,5	31100133
5,00	.1968	2,5	31100135
5,50	.2165	2,5	03590436PT
6,35	.2500	2,5	31100177
3,00	.1181	3	31100200
3,17	.1248	3	31100205
3,20	.1259	3	31100206
3,50	.1377	3	31100210
4,00	.1574	3	31100220
4,80	.1890	3	31100236
5,00	.1968	3	31100225
5,50	.2165	3	31100250
6,00	.2362	3	31100230

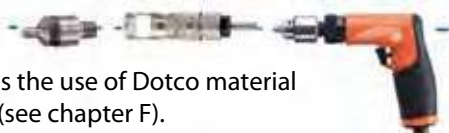


Head Ø B		Shank Ø C mm	Pilot Ref.
-0,02 mm -0,05 mm	-.0007 in. -.0020 in.		
3,80	.1496	3,5	31100300
4,00	.1574	3,5	31100305
4,15	.1634	3,5	31100310
4,80	.1890	3,5	31100315
5,00	.1968	3,5	31100320
4,00	.1574	4	31100400
4,50	.1771	4	31100405
4,76	.1874	4	31100410
4,80	.1890	4	31100415
5,00	.1968	4	31100420
5,50	.2165	4	31100425
5,60	.2204	4	31100430
6,00	.2362	4	31100440
6,20	.2441	4	31100444
6,30	.2480	4	31100446
6,35	.2500	4	31100445
7,00	.2756	4	31100460
7,90	.3110	4	31100478
8,00	.3149	4	31100455
6,35	.2500	5	31100515
7,00	.2755	5	31100520
9,30	.3661	5	31100586



EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (see chapter F).
- For microstop cages selection, (refer to chapter A).



Alternative pilots may be manufactured on request :
• e.g. : special diameters and lengths



Back Spotfacing and Countersink Cutters

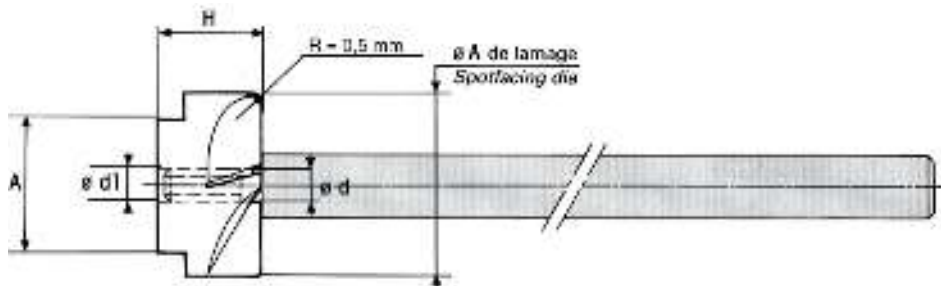
With threaded pilot

**HSS-E
4 flutes**

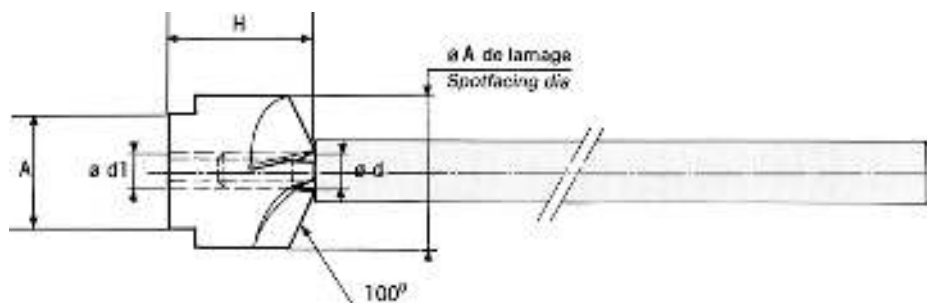


For use with	Aluminium	Steel	Titanium	Composite
HSS-E	⊗	⊗	⊗	

Back spotfacing cutters	Ø Spotfacing dia		Ø d1	Ø d H9 mm	H ± 0,5 mm	A Across flats -0,00 mm -0,10 mm	Cutter ref.
	mm	Inch					
	10	.3937	M4 x 0,7	4	10	6	31500035
	12	.4724	M4 x 0,7	4	10	6	31500065
	14	.5511	M4 x 0,7	4	10	10	31500095



Back countersink cutters	Ø Spotfacing dia		Ø d1	Ø d H9 mm	H ± 0,5 mm	A Across flats -0,00 mm -0,10 mm	Cutter ref.
	mm	Inch					
	6	.2362	M2 x 0,4	2	7	5	31601000
	8	.3149	M3 x 0,5	3	10	6	31601025



EXPERT ADVICE

- To use with our Back Spotfacing Gun RB 1130-2 (see Chapter F).



Alternative cutters can be made on request with:

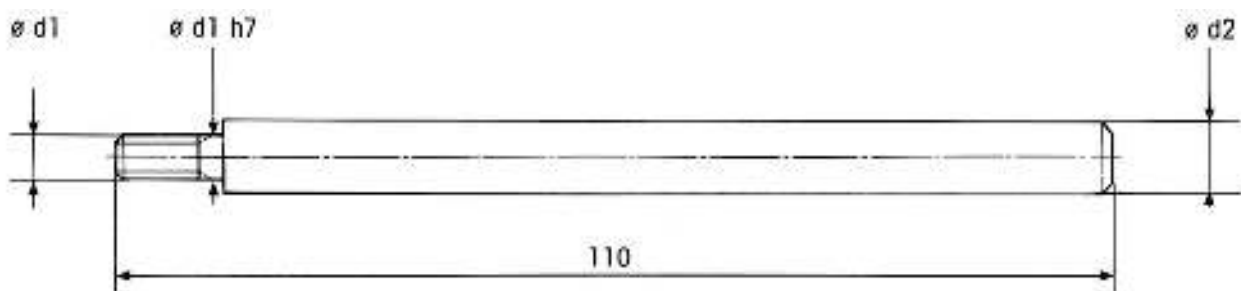
- special diameters and/or radius;

See next page for pilot selection.

Standard Sizes for Pilots Threaded



Ø d1	Pilot		Pilot Ref.
	-0,02 mm -0,05 mm	-0.007 in. -0.0020 in.	
M2 x 0,4	2,35	.0925	31700000
M2 x 0,4	2,50	.0984	31700005
M3 x 0,5	3,00	.1181	31700200
M3 x 0,5	4,00	.1574	31700210
M4 x 0,7	4,00	.1574	31700300
M4 x 0,7	4,75	.1870	31700310
M4 x 0,7	5,00	.1986	31700315
M4 x 0,7	6,00	.2362	31700325



EXPERT INFO



- Special attachment diameter can be made to collet size (see Chapter F).
- To use with backspotfacing and countersink cutters (preceding page).

Alternative pilots can be manufactured on request with :

- special diameters and lengths.

Back Spotfacing and Countersink Cutters


With bayonet locking pilot

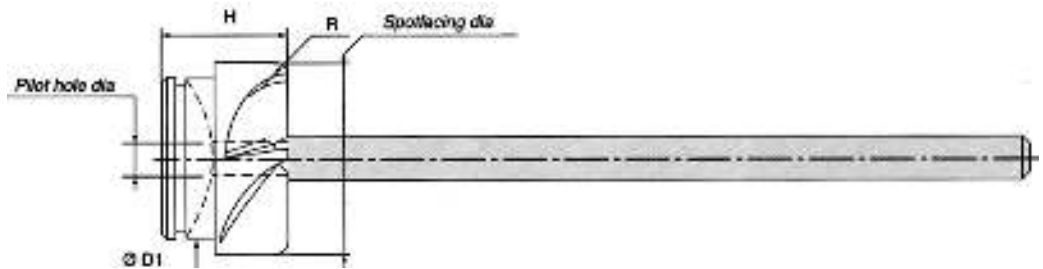
HSS-E




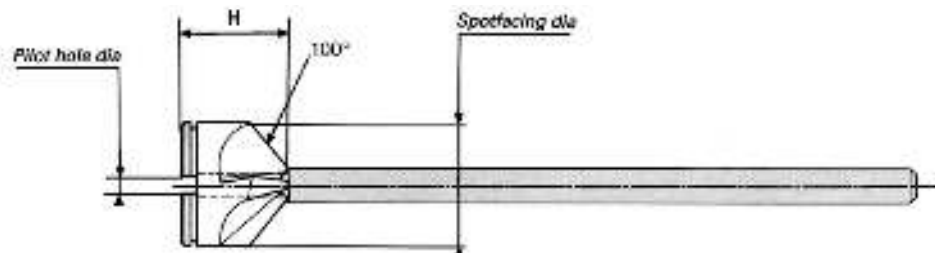
For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

* Carbide cutters: Ø 8 mm - Ø 18 mm → H = 16 mm

Back spotfacing cutters	Ø Spotfacing dia		Radius R mm	H mm	Ø Pilot hole dia mm	Ø D1	Cutter ref. HSS-E	Ring ref.
	mm	Inch						
 Retaining ring	8	.3149	0,5	10	3	8	31300000	91825010
	10	.3937	0,5	10	3	8	31300025	91825010
	10	.3937	2	10	3	8	31302035	91825010
	12	.4724	0,5	10	3	10	31300050	91825015
	12	.4724	2	10	3	10	31302060	91825015
	14	.5511	1	10	3	10	31300125	91825015
	14	.5511	2	10	3	10	31302135	91825015
	14	.5511	1	16	4	10	31300150	91825015
	14	.5511	2	16	4	10	31302160	91825015
	16	.6299	1	16	4	14	31300200	91825025
	16	.6299	2	16	4	14	31302210	91825025
	18	.7086	1	16	4	14	31300250	91825025
	20	.7874	1	16	4	14	31300300	91825025



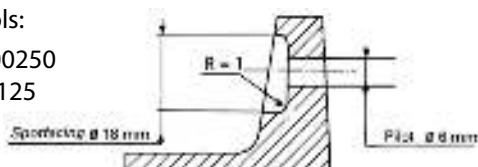
Back countersink cutters	Ø Spotfacing dia		H mm	Ø Pilot hole dia mm	Ø D1	Cutter ref. HSS-E	Ring ref.
	mm	Inch					
 Retaining ring	8	.3149	10	3	8	31306000	91825010
	10	.3937	10	3	8	31306025	91825015
	12	.4724	10	3	8	31306050	91825020
	14	.5511	10	3	10	31306150	91825025
	17	.7083	10	3	10	31306225	91825030



EXAMPLE

Necessary tools:

- Cutter : 31300250
- Pilot : 31400125



Alternative cutters can be made on request with :

- special diameters and/or radius
- special angles (ex : 90°, 120°,...)
- carbide*, HSS-E or PCD

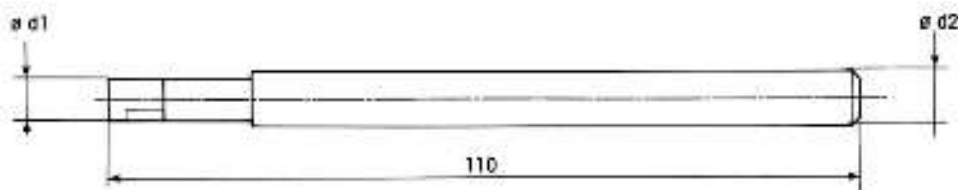
See next page for pilot selection.

Standard Sizes for Pilots

Bayonet locking



Ø d1	Pilot Ød2		Pilot Ref.
	-0,00 mm -0,02 mm	-.000 in. -.0007 in.	
2,5	2,50	.0820	03596083PT
3	3,00	.1181	31400000
3	3,20	.1260	31400004
3	3,50	.1377	31400005
3	4,00	.1574	31400015
3	5,00	.1968	31400020
4	4,00	.1574	31400100
4	4,50	.1771	31400105
4	4,80	.1889	31400110
4	5,00	.1968	31400115
4	6,00	.2362	31400125
5	5,00	.1968	31400200
5	6,00	.2362	31400210
6	6,00	.2362	31400300



EXPERT ADVICE



- To use with our Back Spotfacing Gun RB 1130 (see Chapter F)

Alternative pilots can be manufactured on request with :

- special diameters and lengths

To use with backspotfacing and countersink cutters (preceding page)
Special attachment diameter can be made to collet size (see chapter F).

Drill and Countersink Cutter

RB 018

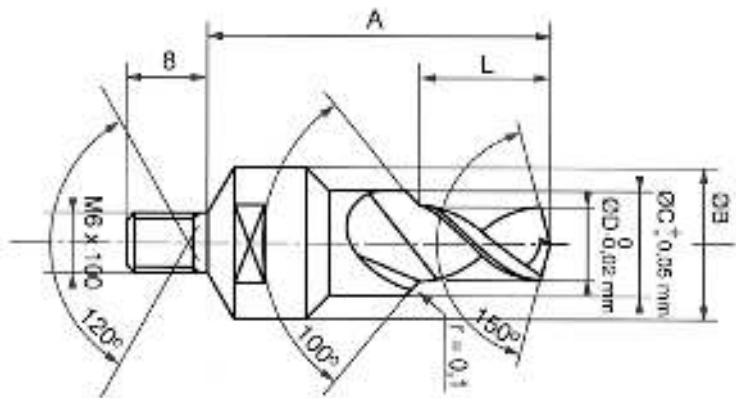


For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

* PCD cutters Countersinking section.

ADVANTAGES

- Drilling and countersinking of all rivet holes can be achieved in one operation.
- Cutter diameters have been designed to meet requirements of various riveting specifications.



EXPERT ADVICE

- The RB 018 drill and countersink cutter is suitable for use with any of the above microstop cages (see chapter A).



- Alternative diameters, lengths, angles, radius, material (PCD, Carbide, HSS-E) are available on request.
- When ordering, please indicate : material to drill, material thickness, holes diameter, tolerance required.

Drill and Countersink Cutter for Automatic or Semi Automatic Drill Riveters

**RB 019
RB 019 HP**



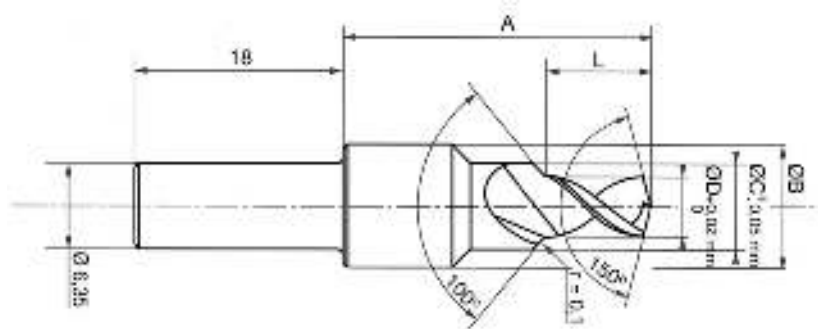
For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

* PCD cutters Countersinking section.

ADVANTAGES

- Drilling and countersinking of all rivet holes are achieved in one operation with tolerance of .003" (0,07 mm) according to nominal diameter, which meets the requirements of most riveting specifications. various riveting specifications.

Nominal Rivet		Dia C		L		Dia C		A		Dia B		Drill Capacity		Part N° HSS-E	Part N° CARBIDE
mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch		
3,20	1/8	3,20	.126	7,00	.276	7,00	.276	26,00	1.023	10,00	.394	6,00	.236	32800100	32802100
4,00	5/32	4,00	.157	7,00	.276	10,00	.394	26,00	1.023	10,00	.394	5,50	.216	32800200	32802200
4,00	5/32	4,00	.157	12,00	.472	10,00	.394	26,00	1.023	10,00	.394	10,00	.394	32800205	32802205
4,80	3/16	4,80	.189	12,00	.472	10,00	.394	26,00	1.023	10,00	.394	10,50	.413	32800260	32802260



RB 019 HP : High Precision Cutters

On request only, we can supply the RB 019 HP in HSS-E, carbide or PCD to use on aluminium alloy or titanium, which will guarantee a hole accuracy of 0.0012" (0,03 mm). These cutters with special grinding, polished flutes, and a drill point concentric to less than 0.0005" (0,01 mm) are commonly used for HI-LITE or HUCK LGP fasteners installation.

When ordering, please indicate : material to drill, material thickness, hole diameter and tolerance required.

Alternative RB019 may be made on request with:

- special diameters and dimensions
- carbide, HSS-E or PCD

Drill, Ream & Countersink Cutter for ADE Machine

RB 020 HP

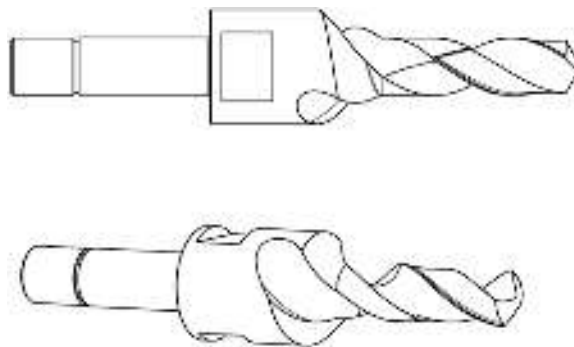


For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

* PCD cutters Countersinking section

PRECISE MANUFACTURE

- On request only, we can supply the RB 020 HP in HSS-E, carbide or PCD to use on aluminium alloy or titanium, which will guarantee a hole accuracy of 0.0012" (0,03 mm). These cutters are manufactured with special grinding, polished flutes, and a drill point concentric to less than 0.0005" (0,01 mm).
- When ordering, please indicate : material to drill, material thickness, hole diameter and tolerance required.



EXPERT ADVICE

- Recoules recommends the use of Recoules ADE Machines (see Chapter B).

Thread	M6	M8-M10-M12
	21500	20962
ADE Machine		

Drill, Ream & Countersink Cutter

RB 022



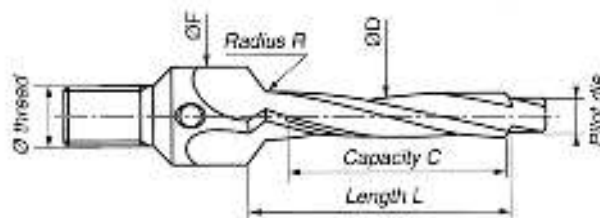
For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

* PCD cutters Countersinking section

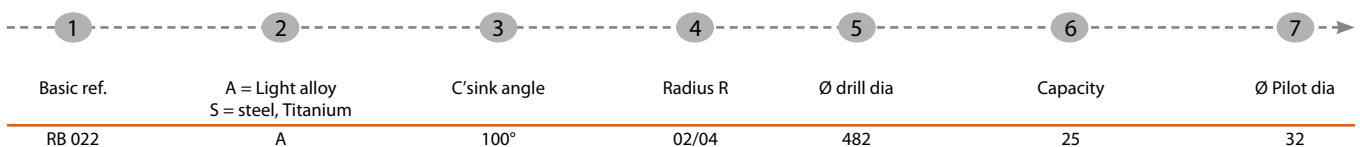
ADVANTAGES

■ This particular type of drill featuring a solid pilot and three flutes has been developed especially to produce finished holes in a single operation : reaming, countersinking and producing the blend radius for all holes up to grade 8, locating in predrilled holes as reference. The non-cutting rear guide ensures perfect concentricity of the countersink, with no elongation of reamed holes.

Microstop cage ref Chapter A	Thread $\varnothing d$	Reamer dia $\varnothing D$		L Maxi		Maxi body dia F		Drill capacity C maxi	
		mm	Inch	mm	Inch	mm	Inch	mm	Inch
RB 356 HP 21	M6 x 1	3,20 - 4,20	0.125 - 0.165	20	.787	10	.393	12	1/2
RB 356 HP 38	M6 x 1	3,20 - 4,21	0.125 - 0.165	36	1.417	10	.393	25	1
RB 356 HP 21	M6 x 1	4,30 - 6,35	0.169 - 1/4	20	.787	14	.551	12	1/2
RB 356 HP 38	M6 x 1	4,30 - 6,35	0.169 - 1/4	36	1.417	14	.551	25	1
RB 356 HP 58	M10 x 1	6,35 - 8,00	1/4 - 0.315	40	1.574	17	.669	30	1.181
RB 356 HP 58	M10 x 1	8,00 - 10,00	0.315 - 0.393	40	1.574	21	.826	30	1.181



Example ordering information RB 022:



EXPERT ADVICE

• The RB 022 drill, ream and countersink cutter is suitable for use with any of the above microstop cages (see chapter A).

- Alternative diameters, lengths, radius, materials (PCD, Carbide, HSS-E) are available on request.
- On request 1/4-28 cutter thread.

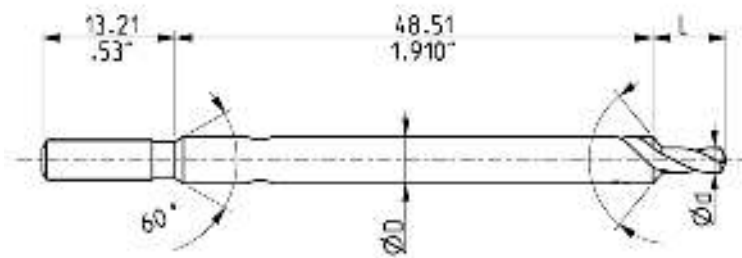
Drill & Countersink Cutter For Nutplate Drill Motors

**HSS-E
CARBIDE**



For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				

TYPE	Shank dia D		Drill dia d		Drill length L		C'sink angle	External Thread	Part N° HSS-E	Part N° CARBIDE
	mm	Inch	mm	Inch	mm	Inch				
WD40 100 25	4,76	.1875	2,49	.0980	7,49	.2950	100°	8-32	32820010	-
WD40 100 35	4,76	.1875	2,49	.0980	10,67	.4200	100°	8-32	32820110	-
WD40 M3 100 25	4,76	.1875	2,49	.0980	7,49	.2950	100°	8-32	-	02110004PT



EXPERT ADVICE

- To use with the Quackenbush Nutplate Drill 10 QNDP.

- Alternative WD and WDS series drill-countersink cutters are available on request.
- When ordering, please state code and series n°.

Router Cutters

HSS-E



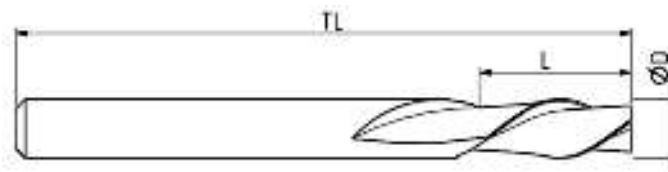
For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				
PCD*				

ADVANTAGES

- These cutters are manufactured with a left hand helix. This ensures swarf dispersion towards the tip of the cutter, improving the working conditions for the operator
- Can be used on thicknesses up to 6 mm in light alloys.
- For certain jobs where the routing operation is in the middle of the plate (such as routing windows or inspection doors), ground point cutters are recommended.



Nominal Dia. D		Cutting length L		Total length		Ref. without ground point	Ref. with ground point
mm	Inch	mm	Inch	mm	Inch		
6,00	.2362	15,00	.5905	64,00	2.52	32600000	32600005
6,35	1/4	15,00	.5905	64,00	2.52	32600050	32600055
7,94	5/16	15,00	.5905	64,00	2.52	32600100	32600105



EXPERT ADVICE

• These router cutters are designed for use on all Dotco routers (see chapter F).



• Alternative diameters, lengths, materials (PCD, Carbide, HSS-E) are available on request.

Tapered Drills Reamers

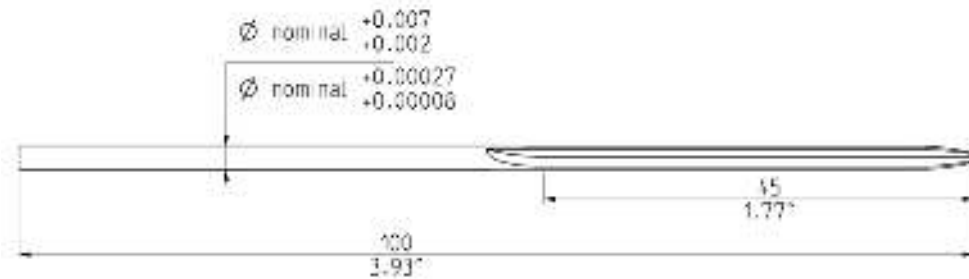
CARBIDE



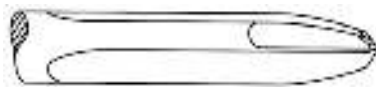
For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				

ADVANTAGES

- Special drill reamers producing accurate holes without delamination.
- For small thickness material, we recommend the 4 fluted cutter .
- Diameter 0.094" up to 0.393"



Example, for use with a drill of 3,17 mm dia



3 FLUTED OGIVAL SHAPE

Basic code

32757

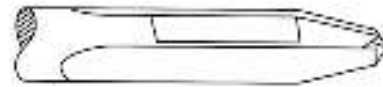
+

Drill size expressed in 1/100 mm

317

32757317

Code to indicate



4 FLUTED TAPERED SHAPE

Basic code

32755

+

Drill size expressed in 1/100 mm

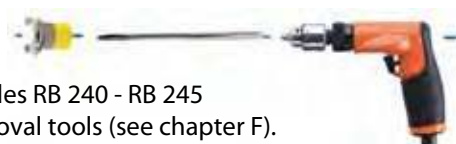
317

32755317

Code to indicate

EXPERT ADVICE

- To use with our drill guides RB 240 - RB 245 and Dotco Material Removal tools (see chapter F).



- For best results, Recoules recommends cutting speed of 125.150 sfpm. Workpiece must be clamped secure to reduce risk of vibration.

Fluted Hand Reamers

HSS-E

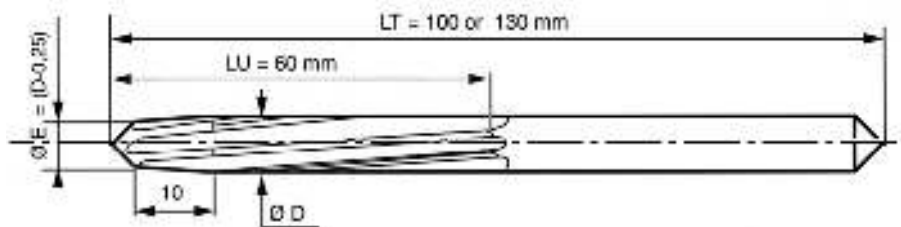


For use with	Aluminium	Steel	Titanium	Composite
CARBIDE				
HSS-E				

SPECIFICATIONS

- HSS-E Cobalt
- 15° left hand spiral flutes
- Overall length: 100 mm - 4" ou/or 130 mm - 5.1"
- Flute length: 60 mm - 2.36"
- 90° ground points
- Taper lead length: 10 mm - 0.4"
- Diameter from 3/32" to 0.5"
- All tolerances
- N° of flutes: up to dia 4,9
up to dia 13

Dia required	Code number	
	Length = 100 mm (4")	Length = 130 mm (5.1")
4 U 9	33503108	-
4 X 7	33504104	33504105
4 Z 7	33506100	-
4,8 H 7	33500104	-
4,8 H 8	-	33500187
5 H 8	33500206	33500207
5 X 7	33504204	33504205
5,2 U 9	33503228	-
5,2 X 7	33504224	-
6 H 8	33500306	-
6 X 7	33504304	-
6,33 H 7	33500301	-
6,35 H 7	33500305	-
7,9 H 8	33500404	-
8 H 7	33500504	-
8,3 H 8	33500536	33500537
9,2 H 8	-	33500627
9,5 H 8	-	33500657
10 M 8	-	33501707
12 H 7	33500904PT	-



EXPERT ADVICE

- To use with our drill guides RB 240 and Dotco Material Removal tools (see chapter F).

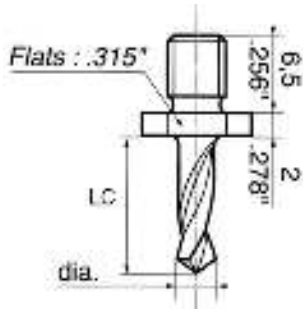


- On request : We can supply special reamers - diameters, length, tolerance, flutes, coating, shank according to your specifications.



Drills for Flat Offset Angle Drill

**HSS
UNF 10-32F**



For use with	Aluminium	Steel	Titanium	Composite
HSS				

LC		Drill diameter		Part N°
mm	Inch	mm	Inch	
8	.315	3,20	.1260	33000132
12	.472	2,50	.0984	33000020
12	.472	3,00	.1181	33000025
12	.472	3,20	.1260	33000030
12	.472	4,00	.1575	33000040
15	.591	4,00	.1575	33000240
15	.591	4,80	.1890	33000248
20	.787	2,50	.0984	33000625
20	.787	3,20	.1260	33000632

• Alternative drills may be manufactured on request:
E.g. : special diameters and lengths.

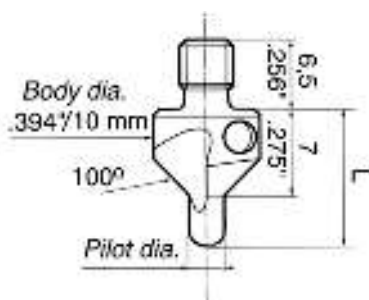
Countersink Cutters for Flat Offset Angle Drill

**HSS
UNF 10-32F**



For use with	Aluminium	Steel	Titanium	Composite
HSS				

L		Pilot diameter		Part N°
mm	inch	mm	inch	
9,40	.370	1,60	.0630	33001005
10,60	.417	2,40	.0945	33001010
10,75	.423	2,50	.0984	33001015
11,60	.456	3,20	.1260	33001020



EXPERT ADVICE

- These cutters are designed for use with the flat offset angle drill RB 106 with UNF 10-32 F spindle thread (see chapter A).
- Recoules also recommends the use of Dotco material removal tools 14 CFS (see chapter F).

• Alternative cutters may be manufactured on request:
E.g. : special diameters and lengths.

Wire Brush for Rivet Holes



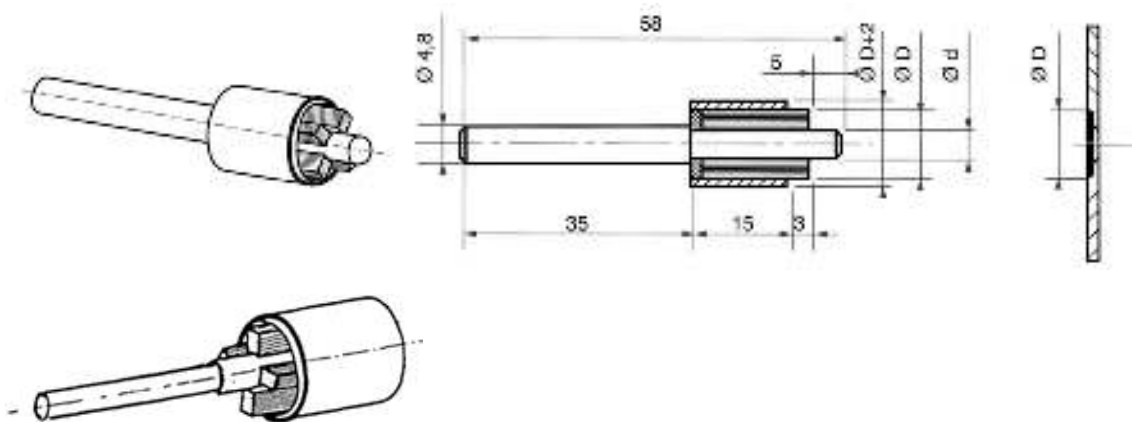
PRECISE MANUFACTURE

- Used for cleaning paint, dirt, rust from around rivet or bolt holes. By placing the pilot in the rivet hole the cleaning process is secure. Assures a positive electrical contact to eliminate static electricity buildup.
- Wire diameter 0.008".
- Solid item, with a steel shank + pilot, nylon body in a copper sleeve, 4 steel brushes set at 90°.

dia D mm	dia d mm	Part N°
8	3,20	32110067
10	2,40	32110102
10	2,50	32110069
10	3,10	32110070
10	3,50	32110071
10	4,00	32110065
10	5,00	32110078
12	2,40	32110103
12	3,00	32110097
12	3,10	32110072
12	3,50	32110073
12	4,00	32110055

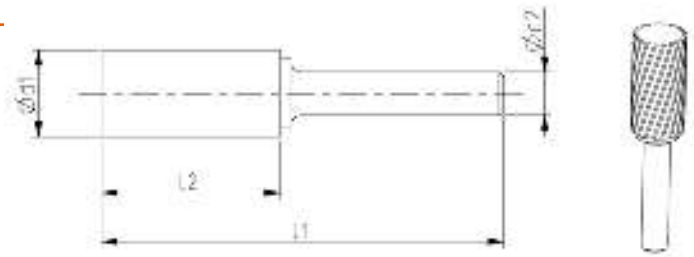
dia D mm	dia d mm	Part N°
12	4,80	32110074
12	5,00	32110079
13	3,00	32110060
13	4,80	32110057
13	5,00	32110056
14	4,00	32110063
14	4,80	32110064
14	5,00	32110082
14	5,20	32110081
14	6,00	32110080
14	6,30	32110068

dia D mm	dia d mm	Part N°
14	7,50	32110059
16	4,10	32110075
16	4,80	32110076
16	5,00	32110119
16	6,00	32110098
16	6,30	32110058
18	4,80	32110062
20	5,00	32110077
20	7,80	32110066
21	9,30	32110083
23	7,50	32110061



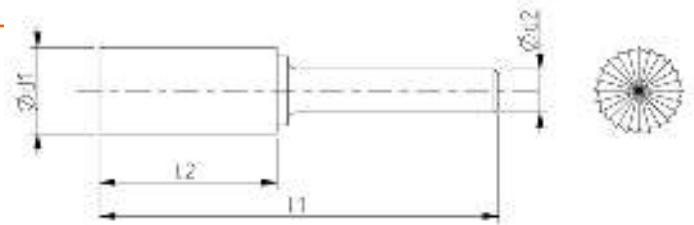
• Backfacing wire brushes, code 32115... and alternative diameters may be manufactured on request

Cylinder Shape Without End Cut



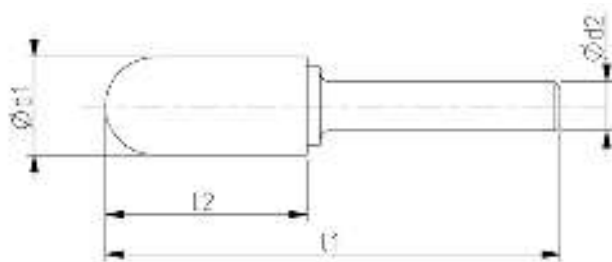
		Part N°								
C U T	1	-	-	-	-	09000120PT	09000180PT	09000210PT	09000330PT	-
	2	-	-	-	09000095PT	09000125PT	09000185PT	09000215PT	09000335PT	09000395PT
	3	09000010PT	09000040PT	09000070PT	09000100PT	09000130PT	09000190PT	09000220PT	09000340PT	09000400PT
	4	-	-	-	09000105PT	09000135PT	09000195PT	09000225PT	09000345PT	09000405PT
	5	-	-	-	09000110PT	09000140PT	09000200PT	09000230PT	09000350PT	09000410PT
	6	09000025PT	09000055PT	09000085PT	09000115PT	09000145PT	09000205PT	09000235PT	09000355PT	09000415PT
	d1 x l2	3 X 15	6 X 6	6 X 12	4 X 16	6 X 18	8 X 20	10 X 20	12 X 25	16 X 25
	d2	3	3	3	6	6	6	6	6	6
	l1	40	36	42	51	55	55	65	70	70

Cylinder Shape With End Cut



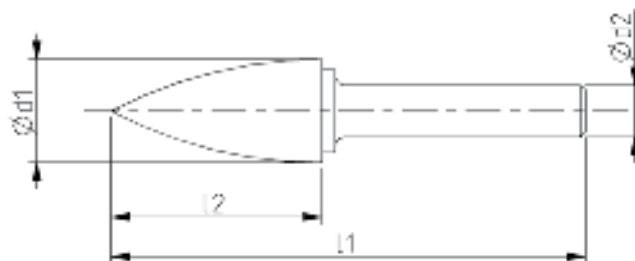
		Part N°								
C U T	1	-	-	-	-	09001120PT	09001180PT	09001210PT	09001330PT	09001420PT
	2	-	-	-	09001095PT	09001125PT	09001185PT	09001215PT	09001335PT	09001395PT
	3	09001010PT	09001040PT	09001070PT	09001100PT	09001130PT	09001190PT	09001220PT	09001340PT	09001400PT
	4	-	-	-	09001105PT	09001135PT	09001195PT	09001225PT	09001345PT	09001405PT
	5	-	-	-	09001110PT	09001140PT	09001200PT	09001230PT	09001350PT	09001410PT
	6	09001025PT	09001055PT	09001085PT	09001115PT	09001145PT	09001205PT	09001235PT	09001355PT	09001415PT
	d1 x l2	3 X 15	6 X 6	6 X 12	4 X 16	6 X 18	8 X 20	10 X 20	12 X 25	16 X 25
	d2	3	3	3	6	6	6	6	6	6
	l1	40	36	42	51	55	55	65	70	70

Cylinder Shape Radius End



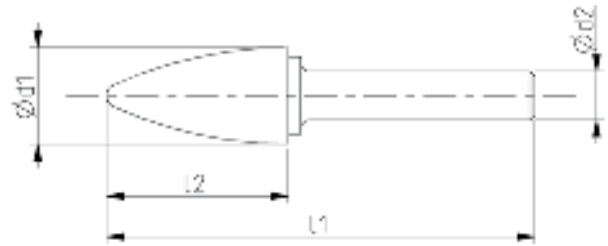
		Part N°							
C U T	1	-	-	-	09002120PT	09002180PT	09002210PT	09002330PT	09002420PT
	2	-	-	09002095PT	09002125PT	09002185PT	09002215PT	09002335PT	09002395PT
	3	09002010PT	09002070PT	09002100PT	09002130PT	09002190PT	09002220PT	09002340PT	09002400PT
	4	-	-	09002105PT	09002135PT	09002195PT	09002225PT	09002345PT	09002405PT
	5	-	-	09002110PT	09002140PT	09002200PT	09002230PT	09002350PT	09002410PT
	6	09002025PT	09002085PT	09002115PT	09002145PT	09002205PT	09002235PT	09002355PT	09002415PT
	d1 x l2	3 X 18	6 X 12	4 X 16	6 X 18	8 X 20	10 X 20	12 X 25	16 X 25
	d2	3	3	6	6	6	6	6	6
	l1	40	42	51	55	55	65	70	70

Tree Shape Pointed End



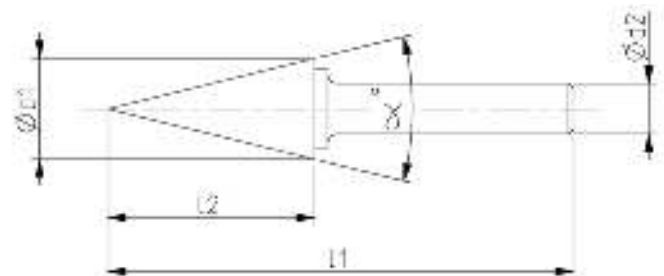
		Part N°							
C U T	1	-	-	-	-	-	-	-	-
	2	-	-	09003125PT	09003215PT	09003275PT	09003335PT	09003395PT	
	3	09003010PT	09003070PT	09003130PT	09003220PT	09003280PT	09003340PT	09003400PT	
	4	-	-	09003135PT	09003225PT	09003285PT	09003345PT	09003405PT	
	5	-	-	09003140PT	09003230PT	09003290PT	09003350PT	09003410PT	
	6	09003025PT	09003085PT	09003145PT	09003235PT	09003295PT	09003355PT	09003415PT	
	d1 x l2	3 X 10	6 X 12	6 X 18	10 X 20	12 X 20	12 X 25	16 X 25	
	d2	3	3	6	6	6	6	6	
	l1	40	42	55	65	65	70	70	

Tree Shape Radius End



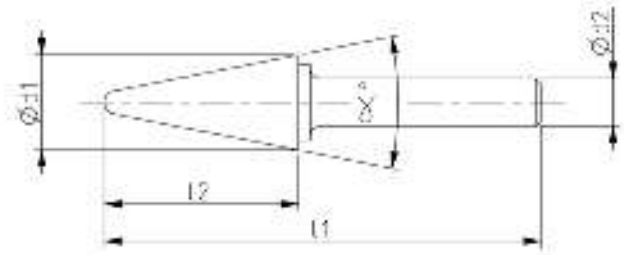
		Part N°					
C U T	1	-	-	09004120PT	09004210PT	09004330PT	09004420PT
	2	-	-	09004125PT	09004215PT	09004335PT	09004395PT
	3	09004010PT	09004070PT	09004130PT	09004220PT	09004340PT	09004400PT
	4	-	-	09004135PT	09004225PT	09004345PT	09004405PT
	5	-	-	09004140PT	09004230PT	09004350PT	09004410PT
	6	09004025PT	09004085PT	09004145PT	09004235PT	09004355PT	09004415PT
	d1 x l2	3 X 13	6 X 12	6 X 18	10 X 20	12 X 25	16 X 30
	d2	3	3	6	6	6	6
	l1	40	42	55	65	70	70

Cone Shape



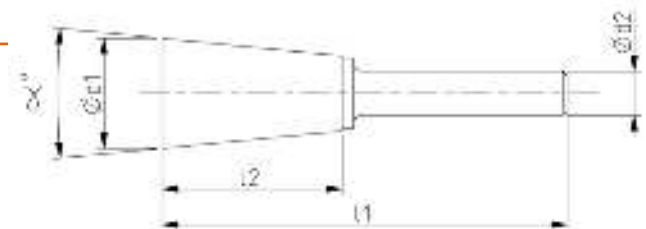
		Part N°					
C U T	1	-	-	-	-	-	-
	2	-	-	09005125PT	09005215PT	09005335PT	09005335PT
	3	09005010PT	09005070PT	09005130PT	09005220PT	09005340PT	09005340PT
	4	-	-	09005135PT	09005225PT	09005345PT	09005345PT
	5	-	-	09005140PT	09005230PT	09005350PT	09005350PT
	6	09005025PT	09005085PT	09005145PT	09005235PT	09005355PT	09005355PT
	d1 x l2	3 X 12	6 X 12	6 X 18	10 X 22	12 X 25	12 X 25
	d2	3	3	6	6	6	6
	l1	40	42	55	67	70	70
	α	14°	22°	18°	25°	25°	25°

Taper Radius End



		Part N°					
C U T	1	-	-	-	09006210PT	09006330PT	09006420PT
	2	-	-	09006125PT	09006215PT	09006335PT	09006395PT
	3	09006010PT	09006070PT	09006130PT	09006220PT	09006340PT	09006400PT
	4	-	-	09006135PT	09006225PT	09006345PT	09006405PT
	5	-	-	09006140PT	09006230PT	09006350PT	09006410PT
	6	09006025PT	09006085PT	09006145PT	09006235PT	09006355PT	09006415PT
	d1 x l2	3 X 9	6 X 12	6 X 18	10 X 20	12 X 30	16 X 30
	d2	3	3	6	6	6	6
	l1	40	42	55	67	75	75
	α	8°	14°	10°	14°	14°	14°

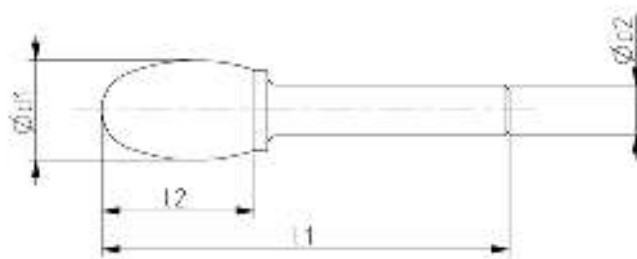
Inverted Cone Shape



		Part N°		
C U T	1	-	-	-
	2	-	09007275PT	09007395PT
	3	09007040PT	09007280PT	09007400PT
	4	-	09007285PT	09007405PT
	5	-	09007290PT	09007410PT
	6	09007055PT	09007295PT	09007415PT
	d1 x l2	6 X 6,5	12 X 12	16 X 13
	d2	3	6	6
	l1	36,5	57	65
	α	18°	20°	30°

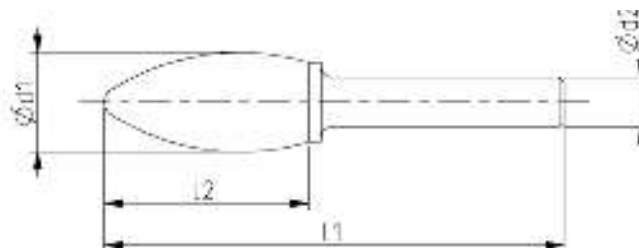


Oval Shape



		Part N°					
CUT	1	-	-	-	-	-	-
	2	-	09008125PT	09008185PT	09008215PT	09008335PT	09008395PT
	3	09008010PT	09008130PT	09008190PT	09008220PT	09008340PT	09008400PT
	4	-	09008135PT	09008195PT	09008225PT	09008345PT	09008405PT
	5	-	09008140PT	09008200PT	09008230PT	09008350PT	09008410PT
	6	09008025PT	09008145PT	09008205PT	09008235PT	09008355PT	09008415PT
	d1 x l2	3 X 6	6 X 10	6 X 13	10 X 16	12 X 20	16 X 30
d2	3	6	6	6	6	6	
l1	40	55	53	61	65	70	

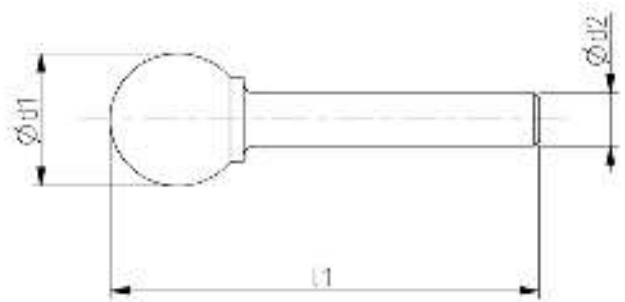
Flame Shape



		Part N°	
CUT	1	-	-
	2	09009335PT	09009395PT
	3	09009340PT	09009400PT
	4	09009345PT	09009405PT
	5	09009350PT	09009410PT
	6	09009355PT	09009415PT
	d1 x l2	12 X 32	16 X 36
d2	6	6	
l1	77	81	

Carbide Burs

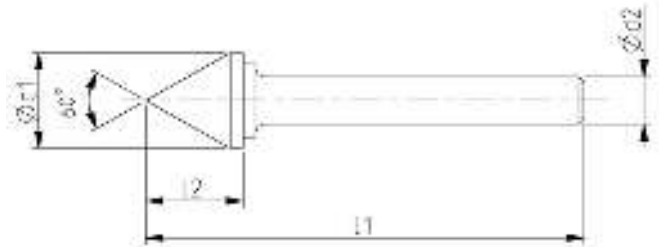
Ball Shape



Part N°

		Part N°								
C U T	1	-	-	-	09010120PT	09010180PT	09010210PT	09010330PT	09010420PT	09010480PT
	2	-	-	09010095PT	09010125PT	09010185PT	09010215PT	09010335PT	09010395PT	09010455PT
	3	09010010PT	09010070PT	09010100PT	09010130PT	09010190PT	09010220PT	09010340PT	09010400PT	09010460PT
	4	-	-	-	-	09010195PT	09010225PT	09010345PT	09010405PT	09010465PT
	5	-	-	09010110PT	09010140PT	09010200PT	09010230PT	09010350PT	09010410PT	09010470PT
	6	09010025PT	09010085PT	09010115PT	09010145PT	09010205PT	09010235PT	09010355PT	09010415PT	09010475PT
	d1 x l2	3	6	4	6	8	10	12	16	20
	d2	3	3	6	6	6	6	6	6	6
	l1	40	35	51	51	52	54	55	59	63

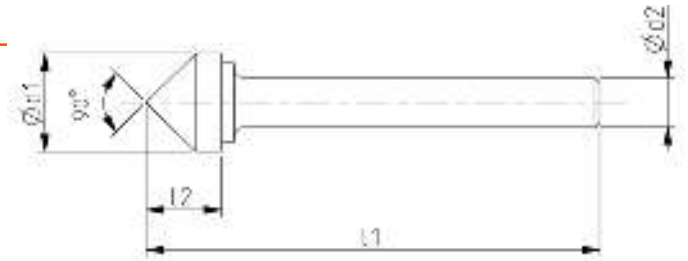
Cone Shape Angle 60°



Part N°

		Part N°				
C U T	2	-	09011125PT	09011215PT	09011335PT	09011395PT
	N° of flutes	-	16	24	24	28
	3	09011010PT	09011130PT	09011220PT	09011340PT	09011400PT
	N° of flutes	12	24	32	36	40
	d1 x l2	3 X 2,5	6 X 5	10 X 13	12 X 14	16 X 16
	d2	3	6	6	6	6
	l1	40	55	58	59	61

Cone Shape Angle 90°



























		Part N°				
CUT	2	-	09012125PT	09012215PT	09012335PT	09012395PT
	N°of flutes	-	16	24	24	28
	3	09012010PT	09012130PT	09012220PT	09012340PT	09012400PT
	N°of flutes	12	24	32	36	40
d1 x l2	3 X 1,5	6 X 3	10 X 10	12 X 10	16 X 13	
d2	3	6	6	6	6	
l1	40	55	55	55	58	

Special Cutting Tools

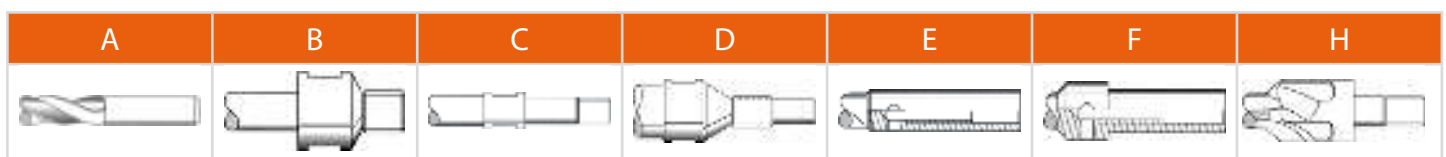


D

Cutting Tool Geometry

Description	HSS-E	CARBIDE	PCD	Attachment	Cutter Style	Comments
Drill Only 			 PCD point	All	M	Split Point is standard.
Ream Only Pre-hole required 				All	N	Left hand helix. Swarf directed away from cutter ensuring quality of surface finish and hole size.
Drill + Reamer 				All	P	Drill / Reamer produces high quality, accurate hole in one operation. Split Point is standard. Countersink is available.
Square Drill 				All	Q	Square Drill is strong, permits good lubrication and swarf flow. Especially good for deep hole precision and good surface finish. Use in positive feed ADE only. Countersink is available.
Drill + Countersink 			 PCD point	All	R	Drill plus Countersink produces standard hole and countersink in one operation. Split point is standard.
Ream + Countersink Pre-hole required 			 PCD point	All	U	Ream-Countersink cutter with pilot for accurate alignment in pre-drilled hole.
Taper-Lock Ream + Countersink Pre-hole required 				B-C-D et H	V	Taper-Lock specifications are based on briles standards. However, many variations exist and complete specifications are required.

Attachment



	Mounting Style	Part N°	Thread	A		B		C		
				Inch	mm	Inch	mm	Inch	mm	
Straight Shank		A	-	-	-	-	-	-	-	
Ext'l Thread with 120° Taper		B	B1	1/4-28	-	-	-	-	0,32	8,1
		B	B2	5/16-24	-	-	-	-	0,39	9,9
		B	B3	3/8-24	-	-	-	-	0,47	11,9
		B	B4	7/16-20	-	-	-	-	0,47	11,9
		B	B5	9/16-18	-	-	-	-	0,63	16
		B	B5	5/8-18	-	-	-	-	0,63	16
		B	B7	M6 X 100	-	-	-	-	0,32	8,1
		B	B8	M8 X 100	-	-	-	-	0,32	8,1
		B	B9	M10 X 100	-	-	-	-	0,39	9,9
External Thread with Pilot Diameter and Square Face		C	C1	M6 X 100	0,244	6,2	0,98	24,9	-	-
		C	C2	M8 X 100	0,323	8,2	1,38	35,1	-	-
		C	C3	M10 X 100	0,402	10,2	1,38	35,1	-	-
		C	C4	M12 X 100	0,48	12,2	1,58	40,1	-	-
		C	C5	M16 X 100	0,638	16,2	1,58	40,1	-	-
Pilot Diameter with External Thread and 60° Taper (PET)		D	D1	5/16-24	0,25	6,4	1,06	29,9	0,44	11,2
		D	D2	3/8-24	0,3	7,6	1,145	29,1	0,52	13,2
Internal Thread («Spacematic» Style)		E	E1	1/4-28	0,375	9,25	-	-	-	-
		E	E2	1/4-28	0,500	12,7	-	-	-	-
		E	E3	1/4-28	0,625	15,9	-	-	-	-
		E	E4	3/8-16	0,625	15,9	-	-	-	-
Same as Style E but with cutter diameter greater than 0,19 in (4,8 mm)		F	F1	1/4-28	0,375	9,52	1,22	31	-	-
		F	F2	1/4-28	0,500	12,7	1,22	31	-	-
		F	F3	1/4-28	0,625	15,9	1,22	31	-	-
External Thread with Pilot Diameter & Square Face Location Slots for telescopic Wrench		H	H1	M8 X 100	10		16		8,1	
		H	H3	M10X100	12,5		19,8		9,9	
		H	H4	M12X100	14		23,9		11,9	
		H	H6	M14X100	16		27,9		14	
		H	H7	M18X100	20		27,9		14	

- The mounting style Morse taper is also available codified under CM1 - CM2 - CM3.
- All cutters are available with oil hole for Thru-coolant lubrication.



Example

B7 Cutter Mounting Style	1 Oil Hole	T Type of Cutter	1 Cutter Material	2 Specification Source
<p>Cutter Mounting Style (See preceding pages for details) Cutter.</p> <p>Solid or Oil-hole 1 - Solid 2 - Oil Hole (for thru-coolant lubrication)</p>		<p>Type of Cutter (See preceding pages for details) Cutter.</p>	<p>Cutter Material 1 - HSS-E High Speed Steel 2 - Carbide 3 - PCD</p>	<p>Specification Source 1- Customer Drawing with complete specifications 2- Cutter design by Recoules. Application information provided by customer</p>

- Cutter's manufactured to customer specification are not guaranteed for hole diameter unless so stated.
- For optimum results, cutter must be used on specified tool, with recommended cutter lubrication, properly installed and managed.
- Cutter's will be quoted upon request. Specify quantity(s)? Higher quantities will yield lower unit cost.

Riveting



E

Thickness Gauge

RB 2010



Code number

60901000

PRECISE MANUFACTURE

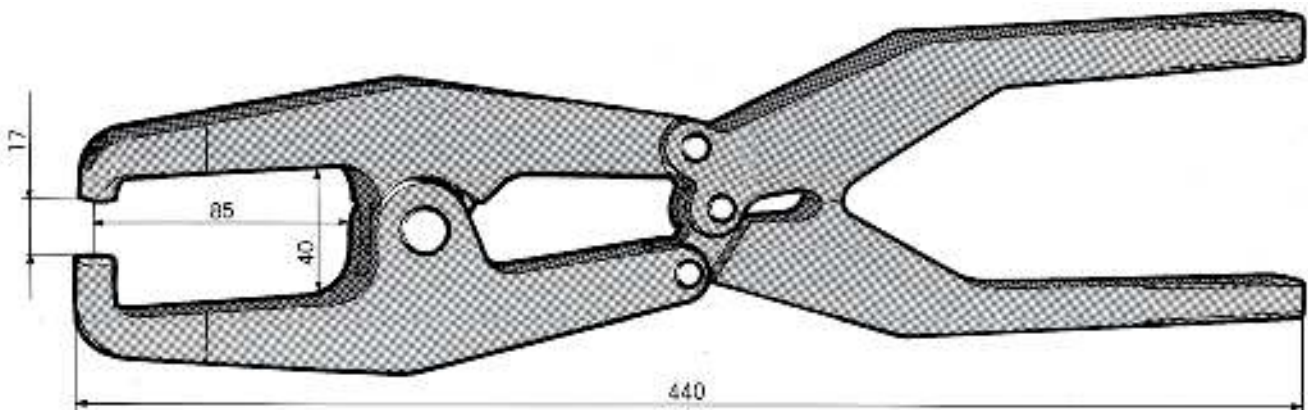
- Simple and handy, equipped with a flexible, highly-efficient safety locking device, this inspection tool is designed for checking all thicknesses from 0 to 1 1/4" (30 mm).
- The accurate scale allows reading to 0.004" (0,1 mm).

EXPERT INFO

- Alternative thicknesses are available on request (example : 1.5" (40 mm), 4 1/2" (115 mm), 6 1/4" (160 mm), etc.).
- On request, this tool is available in imperial measurement in graduation of 1/16".

Hand Riveting Pliers

RB 41-17-70



Code number

60003000

TECHNICAL DATA

Riveting Aluminium rivets: 3/32" dia - maxi Ø 2.4 mm Depth: 3.35" - 85 mm
 To use with rivet squeezer set: 0.197" dia shank - Ø 5 mm Weight: 1,750 kg
 Maxi opening: 1.57" - 40 mm
 Overall length: 17.32" - 440 mm
 This tool is supplied exclusive of the rivet squeezer set

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



Flexible orientation



Code number (std c-yoke 1 1/4" x 1 1/4")

60002005

ADVANTAGES

- Simple and sturdy, equipped with an interchangeable swivel yoke. These pliers have been designed to squeeze aluminium rivets up to capacity 1/8" dia (Ø 3,2 mm).
- Compact with a 0.63" (16 mm) opening and a depth of 1.18" (30 mm), the standard yoke is toughened steel. The pliers setting is achieved by simple adjustment of the snap-holder.
- All special yokes are supplied on request. Simply specify the yoke opening and depth when ordering.
- On request only, this hand riveting plier can be made with bended handles (60002305).

TECHNICAL DATA

Riveting Aluminium rivets: 1/8" dia - maxi Ø 3.2 mm
To use with rivet squeezer set: 5/32" dia shank - Ø 4 mm
Yoke opening: 0.63" - 16 mm
Overall length: 16.53" - 420 mm

This tool is supplied exclusive of the rivet squeezer set

Weight: 1,350 kg
Depth: 1.18" - 30 mm

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).

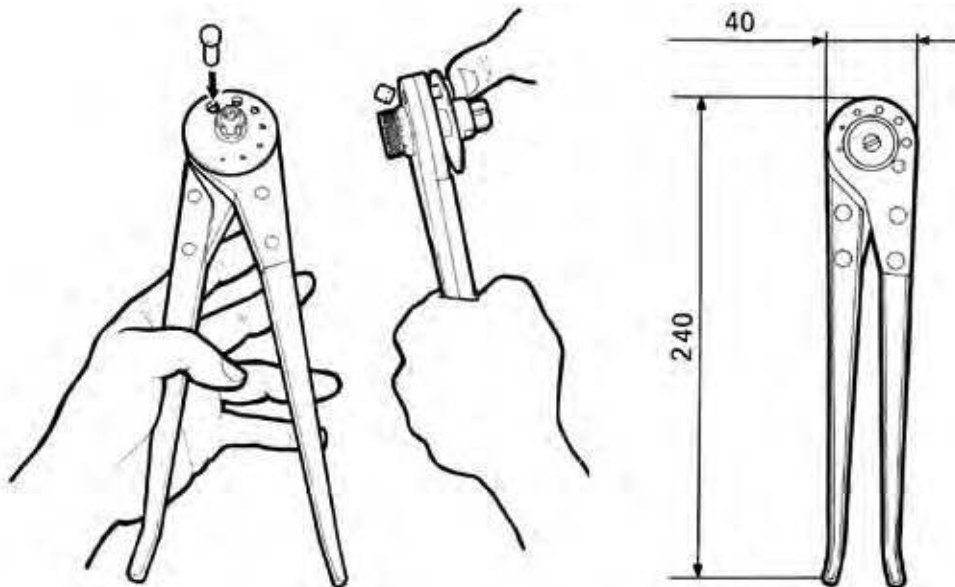




Reference	Rivet dia.	Code number
RB 2015	2	60001000
	2,5	
	3	
	3,5	
	4	
	5	
RBI 2015	6	RC-60001005
	1/16"	
	3/32"	
	1/8"	
	9/64"	
	5/32"	
	3/16"	
7/32"		

PRECISE MANUFACTURE

- This very simple hand cutting tool includes a microstop adjustment for a clean, precise cut of all aluminium rivets from : 1/16" to 7/32" dia.



TECHNICAL DATA

Minimum underhead cutting length: 0.197" dia - 5 mm

Tolerance over length: : 0.002" dia - 0.5 mm

EXPERT INFO

- This tool is also very useful for aircraft maintenance technicians.

Ring Cutter

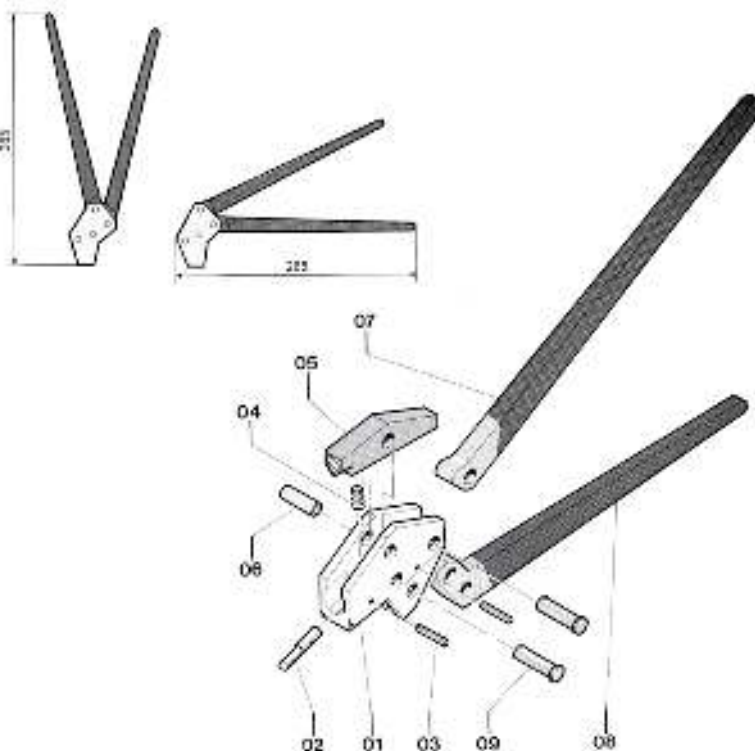
RB 2016



Fasteners dia		Code number
mm	inch	
4,00	.1579	60004000
4,16	.1638	60004017
4,80	3/16"	60004001
5,00	.1969	60004005
5,60	7/32"	60004008
6,00	.2362	60004010
6,35	1/4"	60004016
7,94	5/16"	60004015

ADVANTAGES

- Simple, rugged and handy, this tool has been designed to afford the easy removal of rivet rings (Huck, LGP type or others) without risk of damage to the hole or skin.
- Strong mechanical leverage enables clean removal of rings into two half shells.
- Quick change levers enable the ring cutter to be used in either "in line" or "right angle" position.
- Reduced dimension of the working part.
- No adjustment or setting required for use which is a considerable time-saver for rivet ring removal.
- Removable, quick change anvils.
- Each tool is supplied with 1 set of anvils for one rivet ring diameter.



REFERENCE spare parts (metric)	INDEX	QTY	DESCRIPTION
90510005	1	1	Body for dia 4 mm
90510010	1	1	Body for dia 5 mm
90510015	1	1	Body for dia 6 mm
90520010	2	1	Fixed anvils
91217225	3	2	Pins
93430075	4	1	Spring
90520005	5	1	Pivoting anvil
90030005	6	1	Axis
93060010	7	1	Mobile lever
93060005	8	1	Fixed lever
60004501	9	3	Axis

- Ordering information : please indicate Code number.
- Spare parts for alternative diameters on request only.



Compression Riveter Alligator Jaw Type

RB 40-60



Rivet set hole size	Code number
Std diameter 5 mm	60101010
Std diameter 3/16"	60101110

DESCRIPTION AND ADVANTAGES

- Rivet set holder adjustment - stroke 0.2" allows the operator to use this compression riveter with different thicknesses without changing the rivet set.
- This light, sturdy, compact and fast compression riveter, has a maximum rivet capacity of 3/16" dia for aluminium rivets (depending on the rivet joint thickness).
- Equipped with a safety throttle lever.
- Smooth controlled throttle movement for fast and slow approach.
- Alternative air inlet on request (example 1/4 BSP or 1/4 NPT) .

TECHNICAL DATA

Maximum force: 90 PSI

Jaw Specification

Max travel: 1.93" - 49 mm

Snap holder adj.: 0.2" - 5 mm

Reach: 2.36" - 60 mm

Gap: 2.16" - 55 mm

Overall length: 14.44" - 367 mm

Weight: 3,020 kg

EXPERT INFO

- On request only, pedal operated riveter is available.



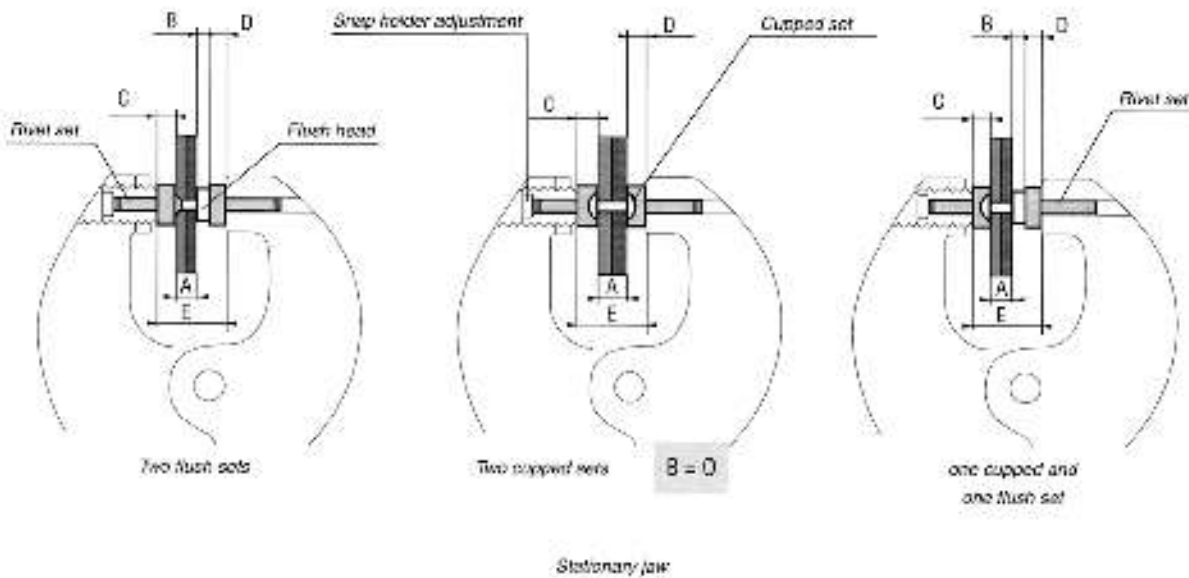
Compression Riveter Alligator Jaw Type

RB 40-60

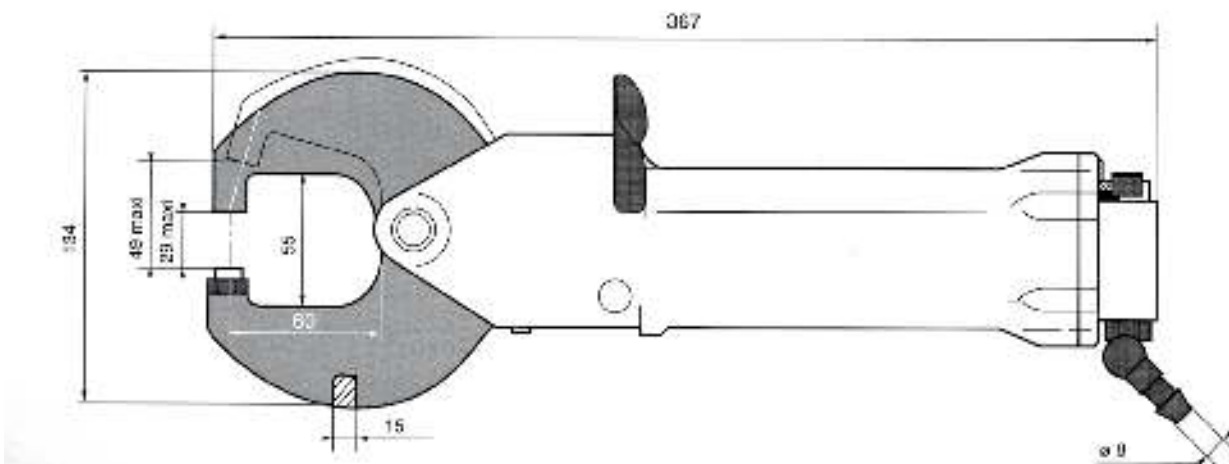
DESCRIPTION AND ADVANTAGES

- To develop maximum power the riveter must squeeze the rivet near to the end of the riveting stroke. Therefore, the combined length of the two rivet sets must be correct.
- The operator can adjust exactly the position of the rivet by adjusting the snap holder (stroke 5 mm). This allows the operator to use the same rivet set for different thicknesses. Determine the correct length of rivet sets as follows.

- A - component thickness
- B - height of finished rivet head (flush)
- C - rivet set height (fixed)
- D - rivet set height (mobile)
- E - closed height dimension of the jaws (adjust by moving the snap holder)



$$E - A - B = C + D$$



E

Compression Riveter Alligator Jaw Type

RB 40-85


Rivet set hole size	Code number
Std diameter 5 mm	60101020
Std diameter 3/16"	60101120

DESCRIPTION AND ADVANTAGES

- Rivet set holder adjustment - stroke 0.2" allows the operator to use this compression riveter with different thicknesses without changing the rivet set.
- This light, sturdy, compact and fast compression riveter, has a maximum rivet capacity of 9/64" dia (3,6 mm) for aluminium rivets (depending on the rivet joint thickness).
- Equipped with a safety throttle lever.
- Smooth controlled throttle movement for fast and slow approach.
- Alternative air inlet on request (example 1/4 BSP or 1/4 NPT) .

TECHNICAL DATA

Maximum force: 90 PSI

Jaw Specification

Max travel: 1.93" - 49 mm

Snap holder adj.: 0.2" - 5 mm

Reach: 3.35" - 85 mm

Gap: 2.16" - 55 mm

Overall length: 15.43" - 392 mm

Weight: 3,100 kg

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



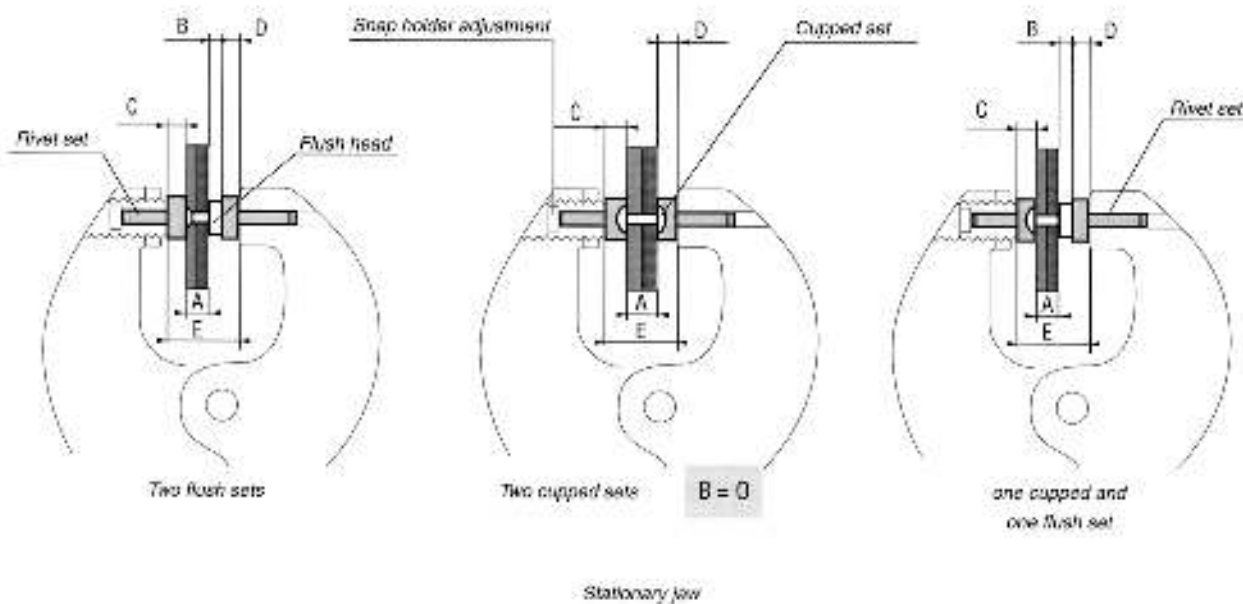
Compression Riveter Alligator Jaw Type

RB 40-85

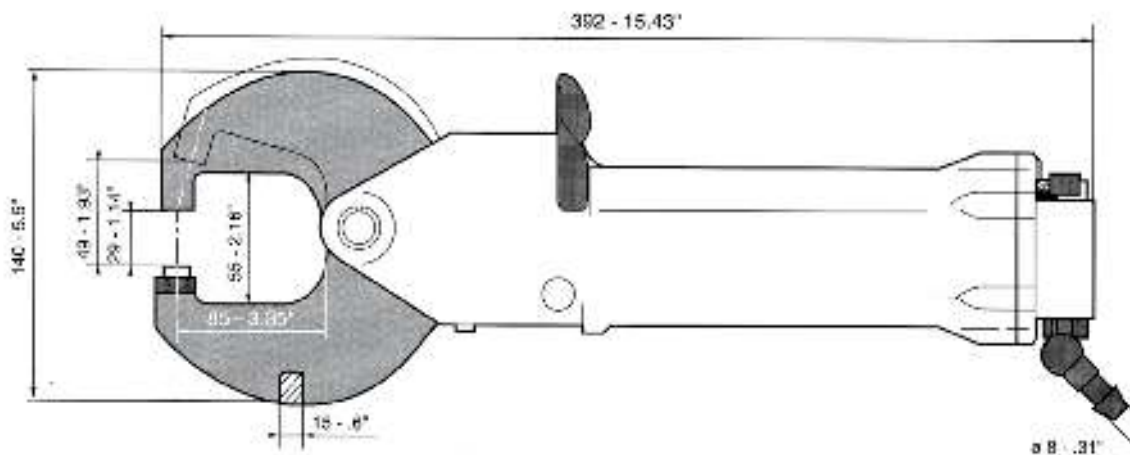
DESCRIPTION AND ADVANTAGES

- To develop maximum power the riveter must squeeze the rivet near to the end of the riveting stroke. Therefore, the combined length of the two rivet sets must be correct.
- The operator can adjust exactly the position of the rivet by adjusting the snap holder (stroke 5mm). This allows the operator to use the same rivet set for different thicknesses. Determine the correct length of rivet sets as follows.

- A - component thickness
- B - height of finished rivet head (flush)
- C - rivet set height (fixed)
- D - rivet set height (mobile)
- E - closed height dimension of the jaws (adjust by moving the snap holder)



$$E - A - B = C + D$$



E

Compression Riveter Alligator Jaw Type

RB 43


Rivet set hole size	Code number
Std diameter 5 mm	60104010
Std diameter 3/16"	60104110

DESCRIPTION AND ADVANTAGES

- Rivet set holder adjustment - stroke 0.2" allows the operator to use this compression riveter with different thicknesses without changing the rivet set.
- This light, sturdy, compact and fast compression riveter, has a maximum rivet capacity of 9/64" dia (3,6 mm) for aluminium rivets (depending on the rivet joint thickness).
- Equipped with a safety throttle lever.
- Smooth controlled throttle movement for fast and slow approach.
- Alternative air inlet on request (example 1/4 BSP or 1/4 NPT) .

TECHNICAL DATA

Maximum force: 90 PSI

Jaw Specification

Max travel: 1.93" - 49 mm

Snap holder adj.: 0.2" - 5 mm

Reach: 2.36" - 60 mm

Gap: 2.16" - 55 mm

Overall length: 9.72" - 247 mm

Weight: 2,080 kg

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



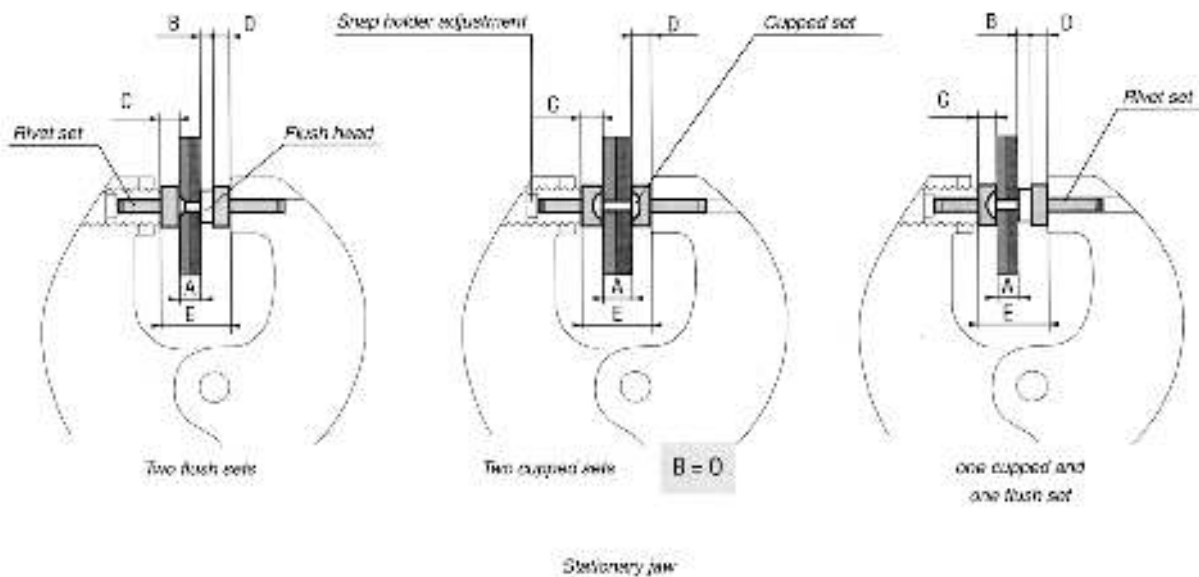
Compression Riveter Alligator Jaw Type

RB 43

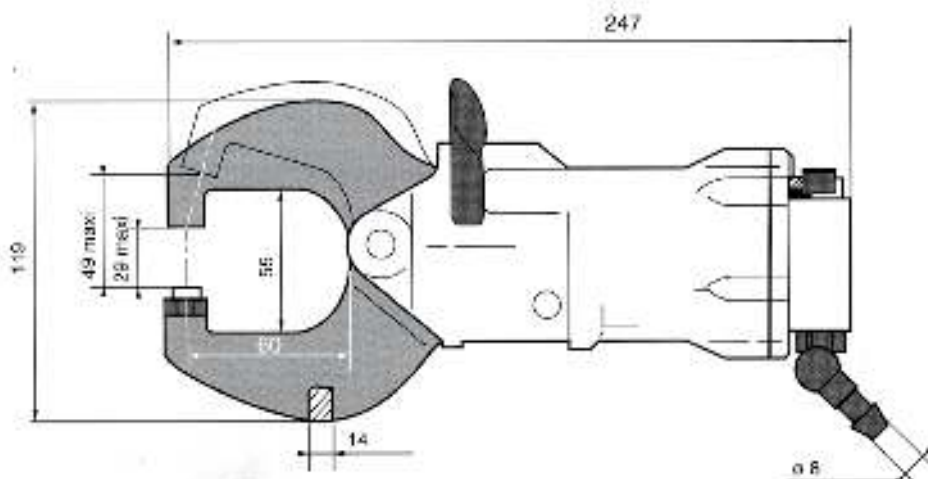
DESCRIPTION AND ADVANTAGES

- To develop maximum power the riveter must squeeze the rivet near to the end of the riveting stroke. Therefore, the combined length of the two rivet sets must be correct.
- The operator can adjust exactly the position of the rivet by adjusting the snap holder (stroke 5 mm). This allows the operator to use the same rivet set for different thicknesses. Determine the correct length of rivet sets as follows.

- A - component thickness
- B - height of finished rivet head (flush)
- C - rivet set height (fixed)
- D - rivet set height (mobile)
- E - closed height dimension of the jaws (adjust by moving the snap holder)



$$E - A - B = C + D$$



E

Compression Riveter Alligator Jaw Type

RB 44-60


Rivet set hole size	Code number
Std diameter 5 mm	60110010
Std diameter 3/16" (4,8 mm)	60110011PT

DESCRIPTION AND ADVANTAGES

- Compression riveters RB 44-60 type use the same basic tool: pneumatic two pistons cylinder with pneumatic retract.
- Rivet set holder adjustment - stroke 0.2" allows the operator to use this compression riveter with different thicknesses without changing the rivet set.
- This light, sturdy, compact and fast compression riveter, has:
 - a maximum rivet capacity of 7/32" dia (5,6 mm) for aluminium rivets (depending on the rivet joint thickness)
 - a maximum rivet capacity of 5/32" dia (4 mm) for titanium rivets (depending on the rivet joint thickness)
- Start with the safety throttle lever - push/turn.
- Smooth controlled throttle movement for slow approach.
- Alternative air inlet on request (example 1/4 BSP or 1/4 NPT).

TECHNICAL DATA

Maximum force: 90 PSI

Jaw specification

Std Air Inlet Dia: 8 mm

Max travel: 1.77" - 45 mm

Snap holder adj.: 0.2" - 5 mm

Reach: 2.28" - 58 mm

Gap: 1.38" - 35 mm

Overall length: 16.77" - 426 mm

Weight: 5,100 kg

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



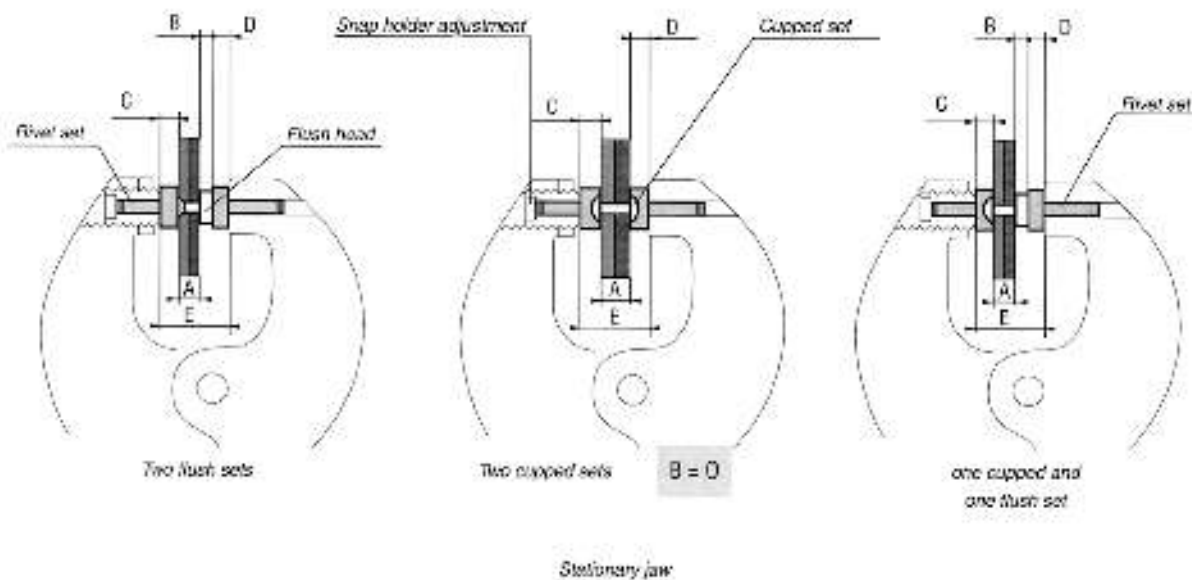
Compression Riveter Alligator Jaw Type

RB 44-60

DESCRIPTION AND ADVANTAGES

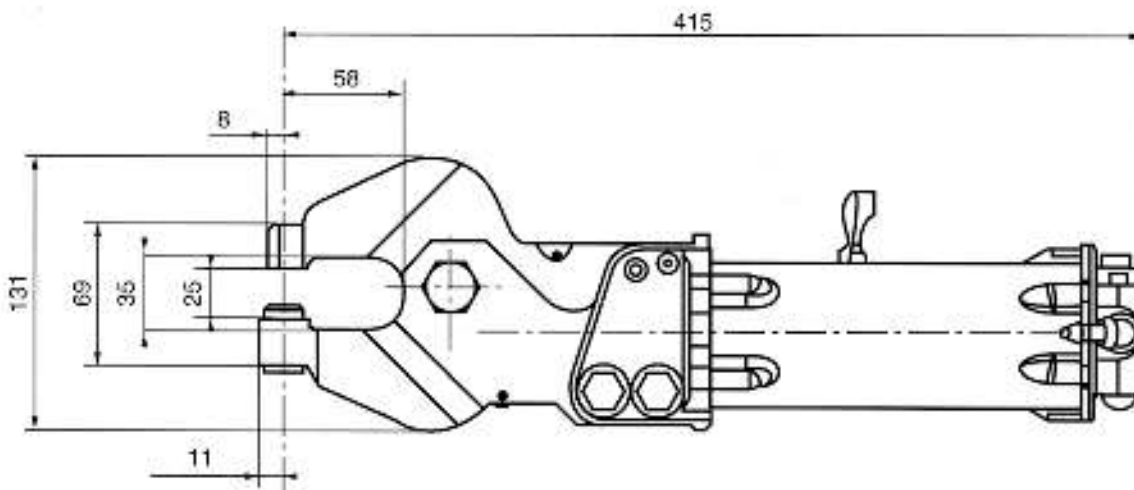
- To develop maximum power the riveter must squeeze the rivet near to the end of the riveting stroke. Therefore, the combined length of the two rivet sets must be correct.
- The operator can adjust exactly the position of the rivet by adjusting the snap holder (stroke 5 mm). This allows the operator to use the same rivet set for different thicknesses. Determine the correct length of rivet sets as follows.

- A - component thickness
- B - height of finished rivet head (flush)
- C - rivet set height (fixed)
- D - rivet set height (mobile)
- E - closed height dimension of the jaws (adjust by moving the snap holder)



$$E - A - B = C + D$$

E



Compression Riveter C-Yoke Type

RB 41


Rivet set hole size	Code number
Std diameter 5 mm	60102010
Std diameter 3/16"	60102110

DESCRIPTION AND ADVANTAGES

- Rivet set holder adjustment - stroke 0.12" allows the operator to use this compression riveter with different thicknesses without changing the rivet set.
- This light, sturdy, compact and fast compression riveter, has a maximum rivet capacity of 3/16" dia (4,8 mm) for aluminium rivets (depending on the rivet joint thickness).
- Equipped with a safety throttle lever.
- Smooth controlled throttle movement for fast and slow approach.

TECHNICAL DATA

Maximum force: 90 PSI

C-YOKE SPECIFICATION

Max travel: 1.34" - 34 mm

Piston Stroke: 0.47" - 12 mm

Snap holder adj.: 0.12" - 3 mm

Reach: 2.00" - 50 mm

Gap: 1.38" - 35 mm

Overall length: 13.40" - 340 mm

Weight: 3,040 kg

EXPERT INFO

- On request only, pedal operated riveter is available.



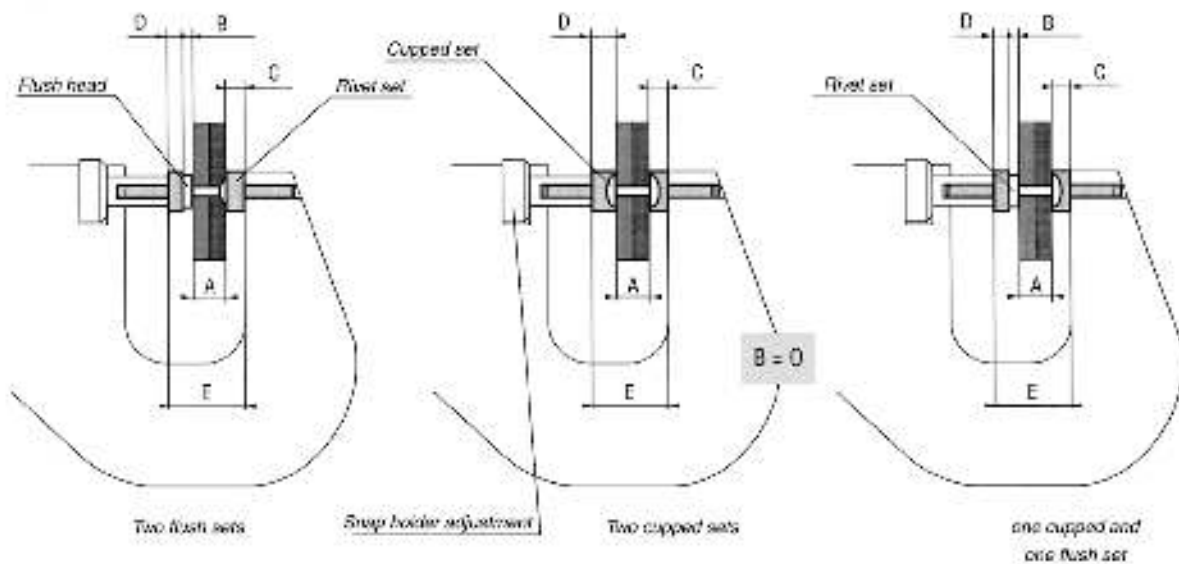
Compression Riveter C-Yoke Type

RB 41

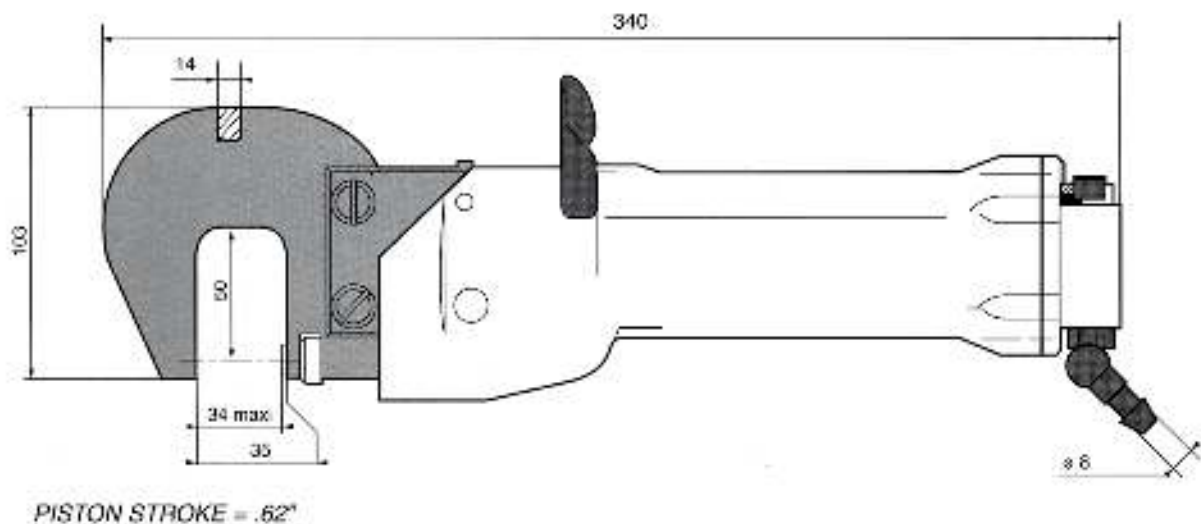
DESCRIPTION AND ADVANTAGES

- To develop maximum power the riveter must squeeze the rivet near to the end of the riveting stroke. Therefore, the combined length of the two rivet sets must be correct.
- The operator can adjust exactly the position of the rivet by adjusting the snap holder (stroke 3 mm). This allows the operator to use the same rivet set for different thicknesses. Determine the correct length of rivet sets as follows.

- A - component thickness
- B - height of finished rivet head (flush)
- C - rivet set height (fixed)
- D - rivet set height (mobile)
- E - closed height dimension of the jaws (adjust by moving the snap holder)



$$E - A - B = C + D$$



E

Compression Riveter C-Yoke Type

RB 42


Rivet set hole size	Code number
Std diameter 5 mm	60103010
Std diameter 3/16"	60103110

DESCRIPTION AND ADVANTAGES

- Rivet set holder adjustment - stroke 0.12" allows the operator to use this compression riveter with different thicknesses without changing the rivet set.
- This light, sturdy, compact and fast compression riveter, has a maximum rivet capacity of 9/64" dia (3,6 mm) for aluminium rivets (depending on the rivet joint thickness).
- Equipped with a safety throttle lever.
- Smooth controlled throttle movement for fast and slow approach.

TECHNICAL DATA

Maximum force: 90 PSI

C-YOKE SPECIFICATION

Max travel: 1.38" - 35 mm

Piston Stroke: 0.62" - 16 mm

Snap holder adj.: 0.12" - 3 mm

Reach: 2.00" - 50 mm

Gap: 1.41" - 36 mm

Overall length: 10.78" - 274 mm

Weight: 2,165 kg

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



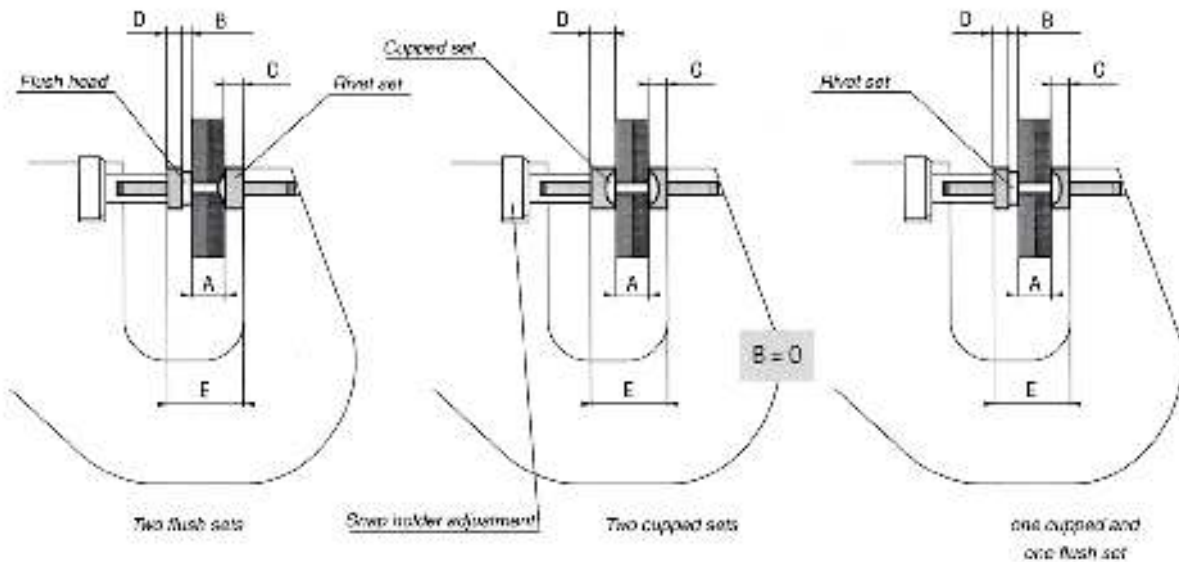
Compression Riveter C-Yoke Type

RB 42

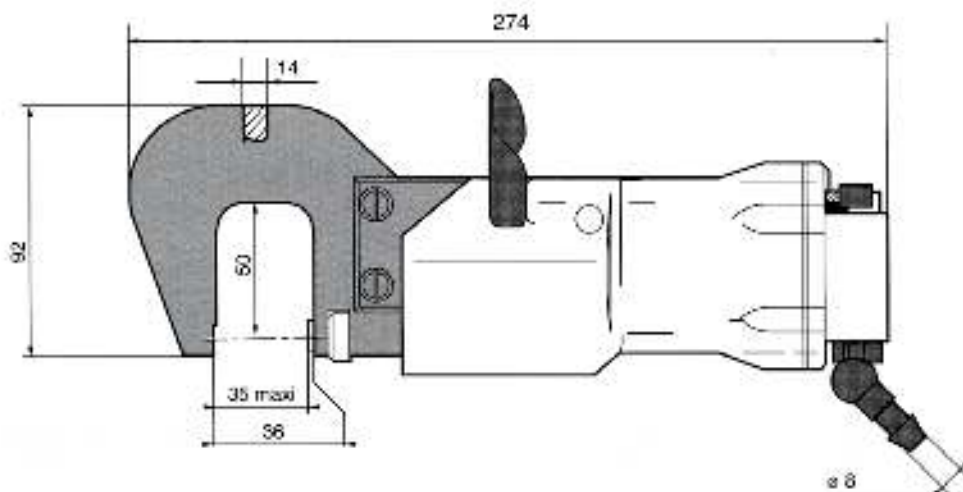
DESCRIPTION AND ADVANTAGES

- To develop maximum power the riveter must squeeze the rivet near to the end of the riveting stroke. Therefore, the combined length of the two rivet sets must be correct.
- The operator can adjust exactly the position of the rivet by adjusting the snap holder (stroke 3 mm). This allows the operator to use the same rivet set for different thicknesses. Determine the correct length of rivet sets as follows.

- A - component thickness
- B - height of finished rivet head (flush)
- C - rivet set height (fixed)
- D - rivet set height (mobile)
- E - closed height dimension of the jaws (adjust by moving the snap holder)



$$E - A - B = C + D$$



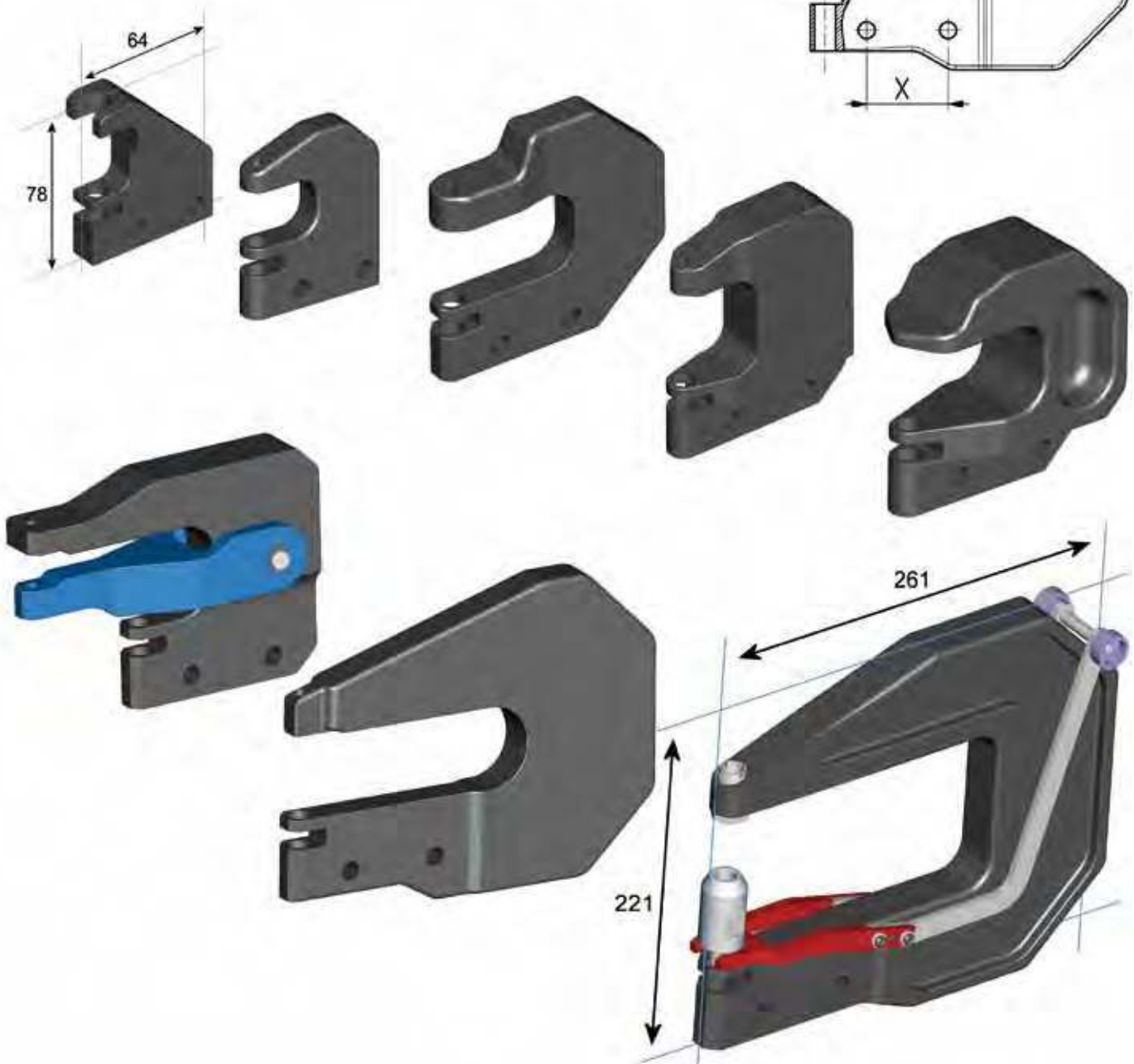
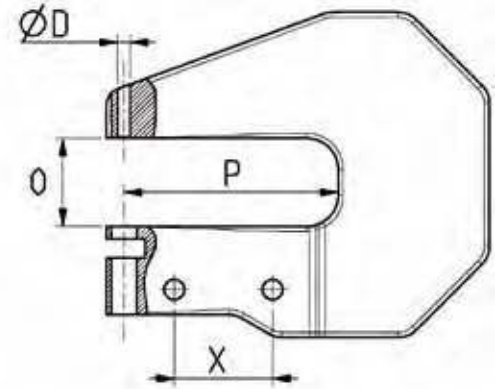
E

Special C-Yokes

For RB 41 - RB 42 Squeezers

Yoke RB 41	Yoke RB 42
X=39	X=31

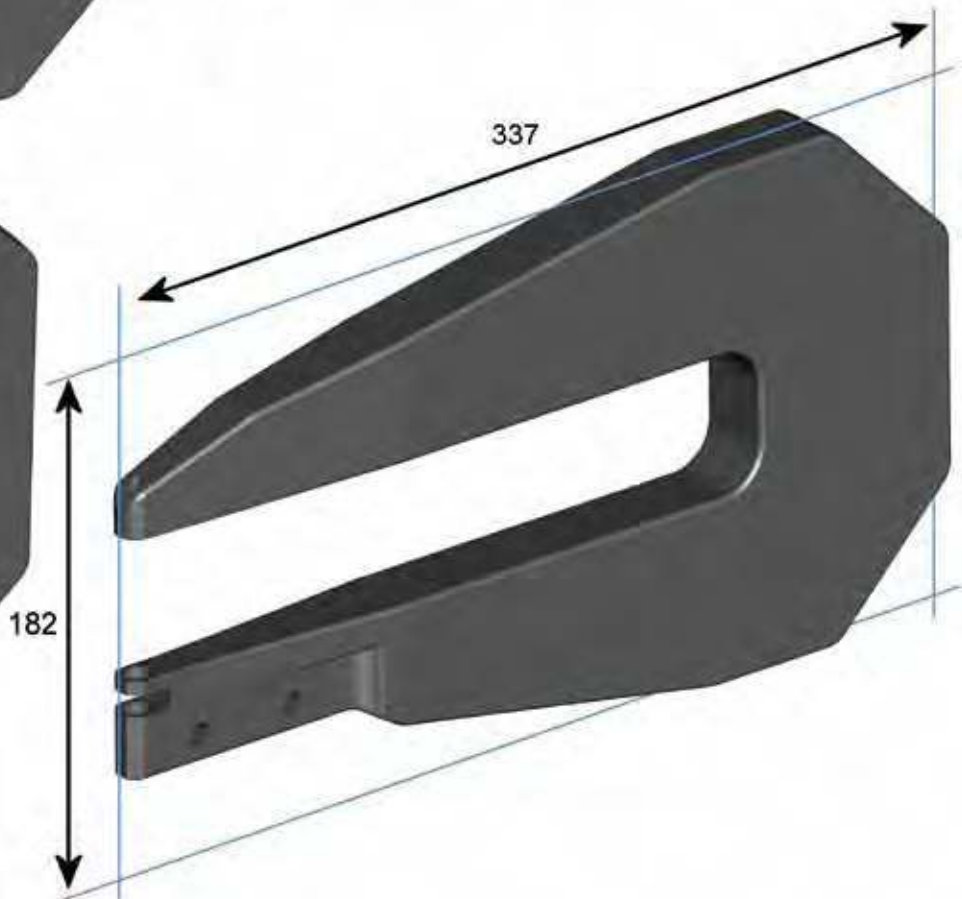
For each special application, the C-yoke's shape is optimized on weight, flexure and strength with a fine element analysis software.



- Alternative C-yokes may be made on request with special dimensions.
- When ordering, please indicate : rivet diameter and material, rivet squeezer set shank diameter, reach " P " , closed height " O " and X = 31 (RB 42) or X = 39 (RB 41).
- Hundreds of models available on demand.


Special C-Yokes

For RB 41 - RB 42 Squeezers



Pressure Riveting Unit

RB 46

RB 46-01	Standard equipment	Riveting assembly Code number
Manual cycle start-up and force adjustment on cylinder		
	Hydropneumatic generator with 1,80 m hose	60203006
	60300106	
	Riveting cylinder with manual control on cylinder	60203106
	60202005	
Hydropneumatic generator with 3 m hose	60203106	
60300206		
Riveting cylinder with manual control on cylinder	60203106	
60202005		

RB 46-03	Standard equipment	Riveting assembly Code number
Pedal cycle start-up and force adjustment on generator		
	Hydropneumatic generator with 1,80 m hose	60203016
	60300111	
	Riveting cylinder with connection block	
	60202010	60203116
	Remote pedal control	
	60404005	
Hydropneumatic generator with 3 m hose	60203116	
60300211		
Riveting cylinder with connection block		
60202010	60203116	
Remote pedal control		
60404005		

TECHNICAL DATA

Max. riveting dia. (depending on the rivet joint thickness):

Light alloy: 5/16" - Ø 8 mm

Monel metal: 1/4" - Ø 6.35 mm

Titanium: 7/32" - Ø 5.6 mm

Adjusting nut for return stroke

Min. force: 0,4 t

Max. force: 7 t

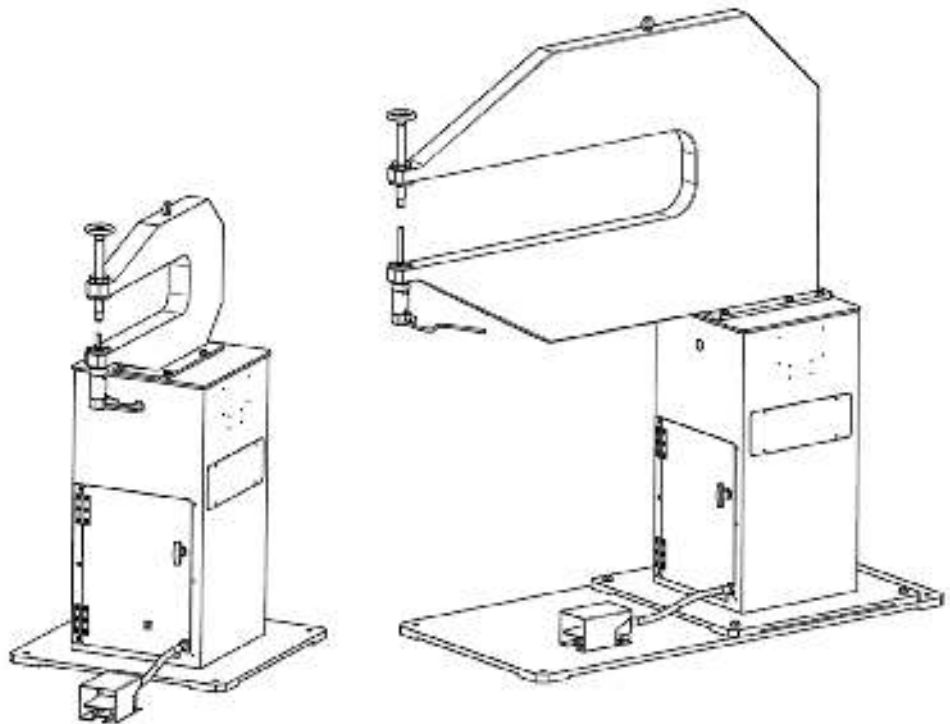
Max. cylinder stroke: 2.00" - 50 mm

DESCRIPTION AND ADVANTAGES

- The RB 46 pressure riveting assembly comprises a hydropneumatic generator, a hydraulic cylinder and a regulator for setting the force (max. 7 tonnes). It uses various standard and special yokes to form solid rivets made from various materials.
- It is easy to use and adjust, making it suitable for all riveting operations on assembly rigs and for maintenance repairs.
- The work cycle is performed automatically after initiation by the operator.
 - quick feed at low pressure until rivet contact
 - high pressure squeezing at preset forces
 - automatic return.
- The principle of this riveting assembly is based on automatic control of the squeezing force ; no additional adjustment is required to squeeze rivets of the same type, diameter and material on assemblies of varying thicknesses.
- An adjusting nut can be used to reduce the return stroke to shorten the riveting time.



Assembly for riveting fastened to fixed frames examples



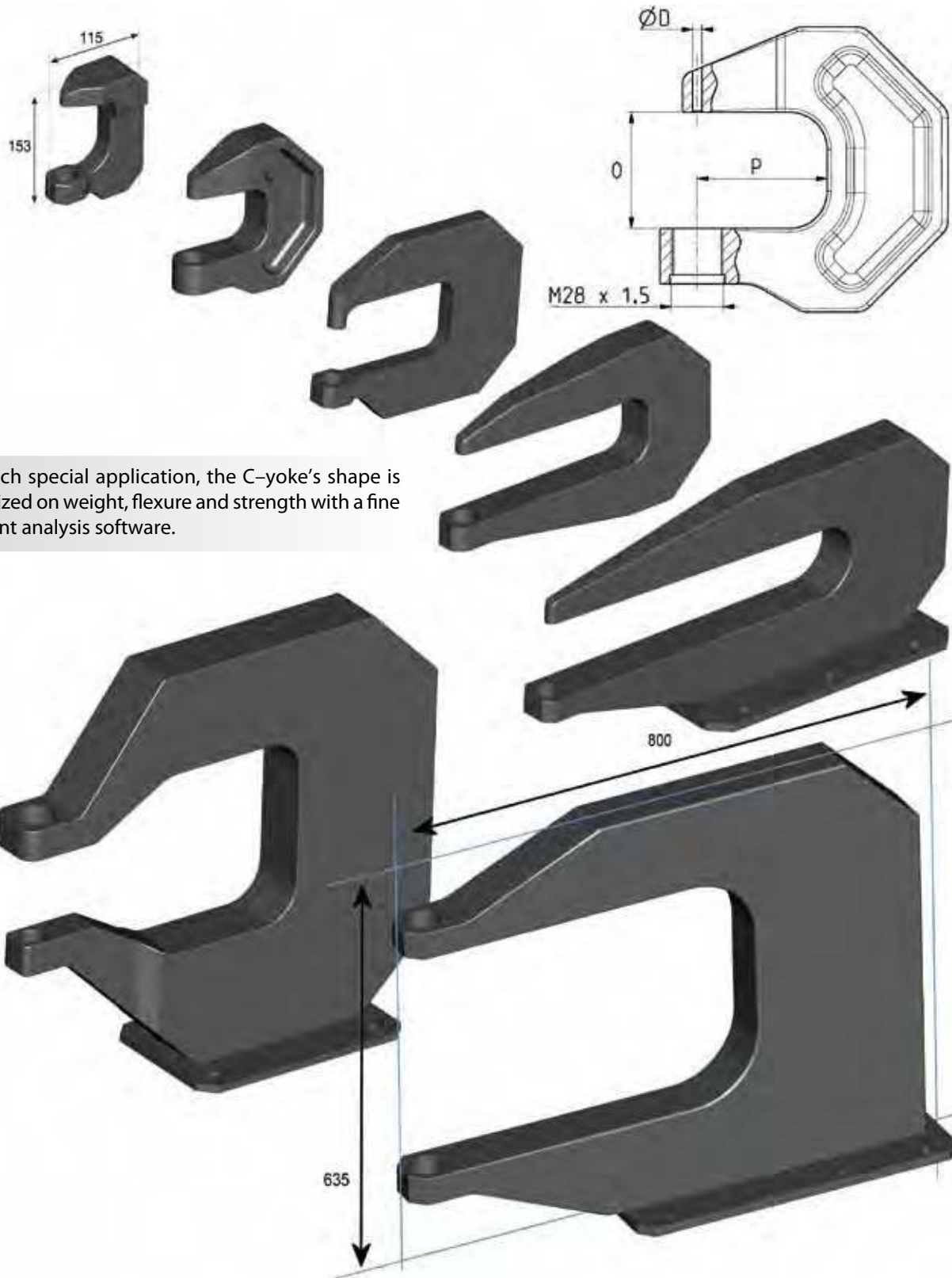
When ordering, indicate riveting assembly code number only.

Options on request :

- Special yokes - see next pages
- Assembly for riveting, dimpling and punching operations (fastened to fixed frames).

Special C-Yokes

For RB 46

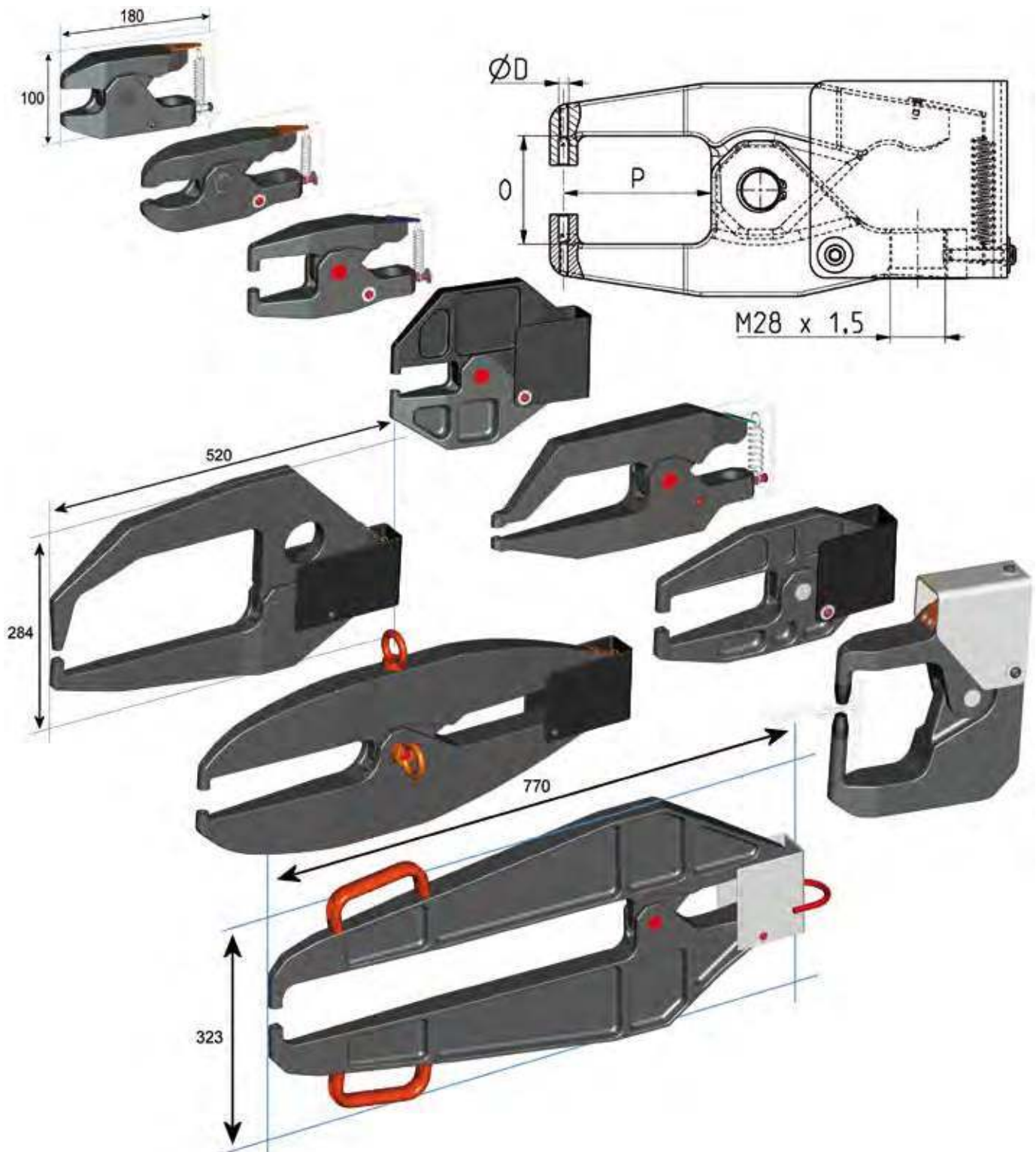


For each special application, the C-yoke's shape is optimized on weight, flexure and strength with a fine element analysis software.

- Alternative C-yokes may be made on request with special dimensions.
- When ordering, please indicate : rivet diameter and material, rivet squeezer set shank diameter, reach " P ", closed height " O ".
- Hundreds of models available on demand.

Special Alligator Jaws

For RB 46



- Alternative alligator jaws may be made on request with special dimensions.
- When ordering, please indicate : rivet diameter and material, rivet squeezer set shank diameter, reach " P " , closed height " O " .
- Hundreds of models available on demand.

EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



Hydropneumatic Generator

For RB 46

RB 1021


Hydropneumatic Generator	Code number
For RB 46-01	60300006
For RB 46-03	60300011

DESCRIPTION

- This hydropneumatic generator comprises :
 - compressed air conditioning assembly with lubricating regulating cylinder,
 - wheeled trolley with a 4,5 liters oil tank with a working capacity of 2,8 liters
 - two-stage low and high pressure pump.
- Hydraulic pressure can be adjusted (max. 10 KSI).
- The high pressure stage generates the preset force, either directly onto the cylinder (RB 46-01) or on the adjustment block (RB 46-03)
- The end of the automatic cycle takes place when the preset force is reached.

TECHNICAL DATA

Connection to compressed air network: 6 to 7 bars (90 PSI)

Flow rate: 750 L/mn

Pipe I.D.: Min 10 mm

EXPERT ADVICE

- Recoules recommends the use of the MOBIL DTE.13 oil (5 liters can).
91450007

Hose

For RB 46

Hose	Length	Riveting assembly Code number
For RB 46-01		
	1,80 m	40150520
	3 m	40150530

Hose	Length	Riveting assembly Code number
For RB 46-03		
	1,80 m	60300520
	3 m	60300530

• 6 m hose on request only.

Riveting Cylinder

For RB 46

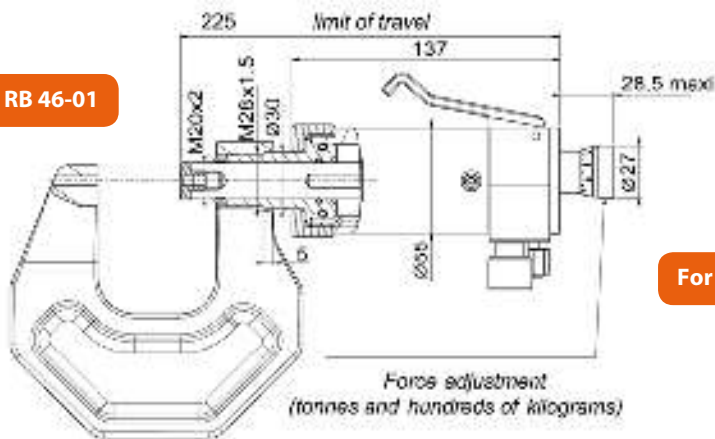


Riveting cylinder	Code number
Riveting cylinder with manual control on cylinder For RB 46-01	60202005
Riveting cylinder with connection block For RB 46-03	60202010

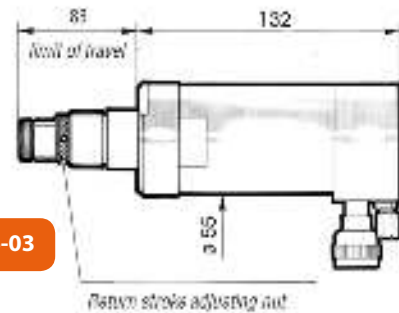
DESCRIPTION AND ADVANTAGES

- This cylinder performs an automatic work cycle. A hydraulic pressure controller permits automatic force control, whatever the pressure variation in the hydropneumatic generator power system.
- The automatic force control operates along the entire stroke. It enables rivets of the same type, diameter and material to be squeezed on assemblies of varying thicknesses without additional adjustment.
- Safety device preventing accidental startup with the manual control cylinder version.

For RB 46-01



For RB 46-03



TECHNICAL DATA

Max. riveting dia. (depending on the rivet joint thickness):

Light alloy: 5/16" - Ø 8 mm

Monel metal: 1/4" - Ø 6.35 mm

Titanium: 7/32" - Ø 5.6 mm

Min. force: 0,4 t

Max. force: 7 t

Max. cylinder stroke: 2.00" - 50 mm

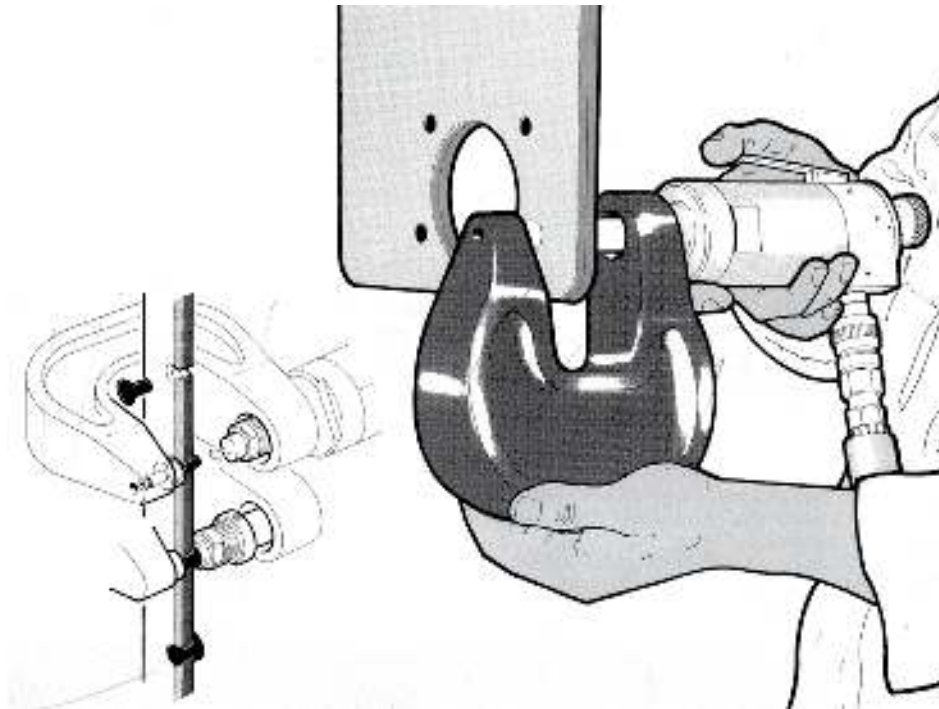
Weight without Yoke: 2 kg

Cycle time: 2,5 s*

*To set a light alloy rivet with a diameter of 4.8 mm with a no-load stroke of 10 mm and a 1.80 meter hydraulic hose.

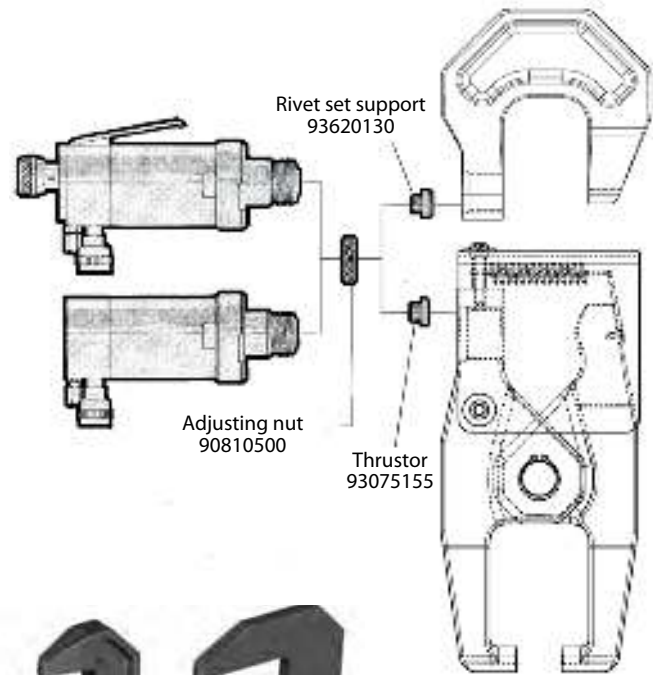
Riveting Cylinder

For RB 46



For RB 46-01

For RB 46-03



EXPERT INFO

- Refer to the end of chapter E for Rivet Squeezer Set selection (RB400 - RB401 - RB402).



- Special c-yokes/alligator jaws on request, refer page 114 and 115.

E

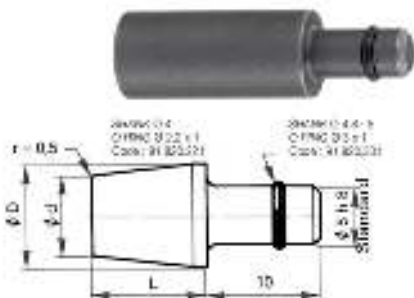


PRECISE MANUFACTURE

- RB 400 → for countersink rivets
- RB 401 → for universal head type rivets
- RB 402 → for special reduced universal head rivets

On request squeezer sets with 3/16" shank :
 RB 400 → Code number 60702...
 RB 401 → Code number 60712...
 RB 402 → Code number 60722...

RB 400

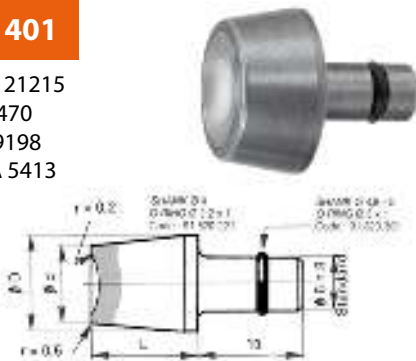


Rivet Dia	1,6 & 2,4		3,2 & 3,6		4		4,8		5,6 & 6,4	
	1/16" & 3/32"		1/8" & 9/64"		5/32"		3/16"		7/32" & 1/4"	
Ø	d	7	9	10	12	16				
	D	9	9	14	14	16				
L	4	60703005	60703205	60703405	60703505	60703605				
	7	60703020	60703220	60703420	60703520	60703620				
	10	60703040	60703240	60703440	60703540	60703640				
	12,5	60703055	60703255	60703455	60703555	60703655				
	16	60703075	60703275	60703475	60703575	60703675				
	20	60703095	60703295	60703495	60703595	60703695				

L	4	60701005	60701205	RB 40-13-30 Shank 4 dia only .1575"
	7	60701020	60701220	

RB 401

NFL 21215
AN 470
LN 9198
NSA 5413

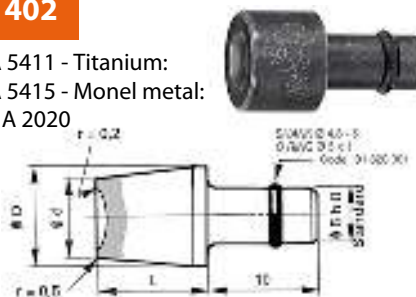


Rivet Dia	2,4		3,2		4		4,8		5,6		6,4	
	3/32"		1/8"		5/32"		3/16"		7/32"		1/4"	
Ø	d	7	9	10	12	14	14	16				
	D	9	9	14	14	14	14	16				
L	4	60713105	60713205	60713405	60713505	60713605	60713705					
	7	60713120	60713220	60713420	60713520	60713620	60713720					
	10	60713140	60713240	60713440	60713540	60713640	60713740					
	12,5	60713155	60713255	60713455	60713555	60713655	60713755					
	16	60713175	60713275	60713475	60713575	60713675	60713775					
	20	60713195	60713295	60713495	60713595	60713695	60713795					

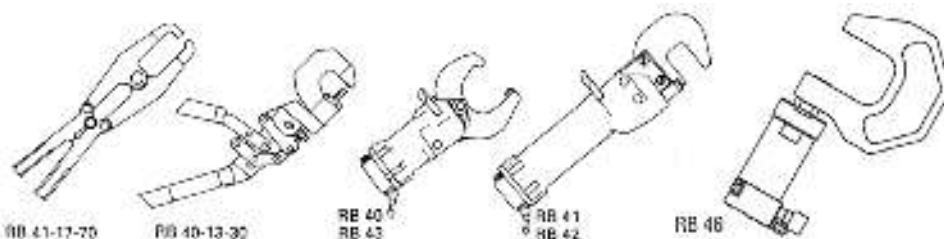
L	4	60711105	60711205	RB 40-13-30 Shank 4 dia only .1575"
	7	60711120	60711220	

RB 402

NSA 5411 - Titanium:
NSA 5415 - Monel metal:
ASNA 2020



Rivet Dia	2,4		3,2		3,6		4		4,8		5,6	
	3/32"		1/8"		9/64"		5/32"		3/16"		7/32"	
Ø	d	7	9	9	10	12	14					
	D	9	9	9	14	14	14					
L	4	60723105	60723205	60723305	60723405	60723505	60723605					
	7	60723120	60723220	60723320	60723420	60723520	60723620					
	10	60723140	60723240	60723340	60723440	60723540	60723640					
	12,5	60723155	60723255	60723355	60723455	60723555	60723655					
	16	60723175	60723275	60723375	60723475	60723575	60723675					
	20	60723195	60723295	60723395	60723495	60723595	60723695					



EXPERT ADVICE

- All our rivet squeezer sets have been especially designed to use with our pneumatic or hydraulic tools (refer to preceding pages).

Flush Set Swivel Type

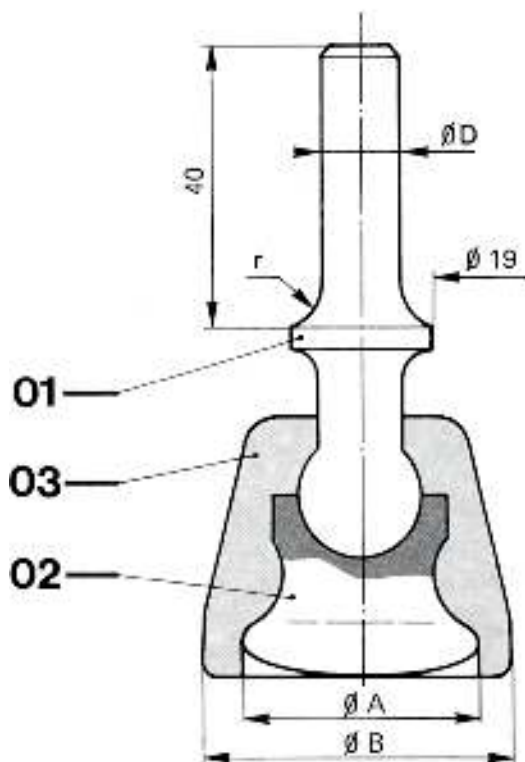
RB 6075



PRECISE MANUFACTURE

- Use of this type of rivet set with a rubber guard prevents slipping and damage to skin surface..

dia D		dia A		dia B	r	Code number
mm	inch	mm	inch	mm		
10,2	.401	18	.700	24	12,7	60751100
10,2	.401	31	1.22	40	12,7	60751150
10,2	.401	25	.984	33	12,7	03910638PT



Rep	dia D	dia A	Code number
01	9,9	18	93201000
01	9,9	31	93201050
01	10,2	18	93201100
01	10,2	31	93201150
01	12,7	18	93201200
01	12,7	31	93201250
02	-	18	90830001
02	-	31	90830002
03	-	18	93080001
03	-	31	93080002

• Different shank diameters are available.



Flush Rivet Set Mushroom Type

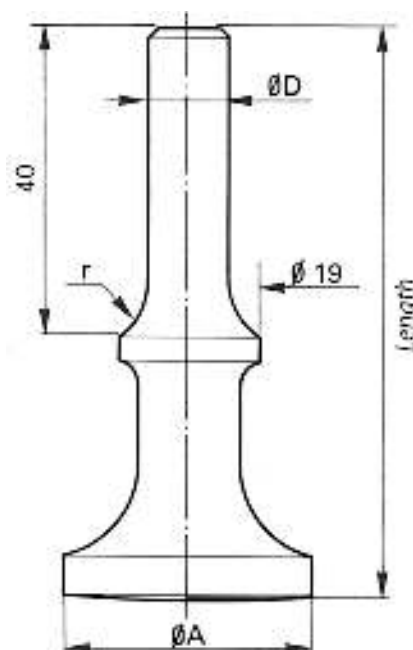
RB 6077



PRECISE MANUFACTURE

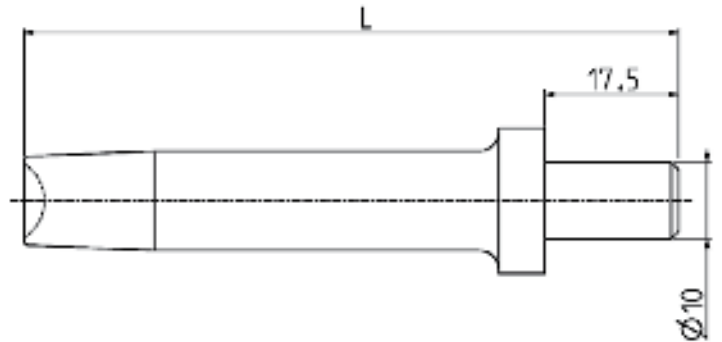
- This type of rivet set is particularly adapted for all riveting operations on thin sections.
- Quality of the working surface prevents damage to the skin.

dia D		dia A		dia L		r	Code number	
mm	inch	mm	inch	mm	inch			
9,5	.374	22	.866	102	4.02	-	03911800PT	
10,2	.401	21	.827	48	1.89	-	03911374PT	Special shank length
10,2	.401	22	.866	65	2.56	-	03910900PT	
10,2	.401	22	.866	66	2.58	-	03911809PT	
10,2	.401	22	.866	109	4.27	-	03911810PT	
10,2	.401	31	1.22	90	3.54	12,70	60771150	
10,2	.401	31	1.22	150	5.90	12,70	60771155	
10,2	.401	31	1.22	190	7.48	12,70	60771160	
12,7	.498	21	.827	48	1.89	-	03911360PT	Special shank length
12,7	.498	35	1.38	55	2.17	-	03911361PT	Special shank length



- Different shank diameters are available.

Short Shank Rivet Set Type



For universal head rivet type L 21215 B	Rivet Dia		2,4	3,2	4
			3/32"	1/8"	5/32"
L		33	03910226PT	03910227PT	03910228PT
		60	-	03912760PT	03912769PT
		90	-	03912761PT	-
		120	-	03912762PT	-

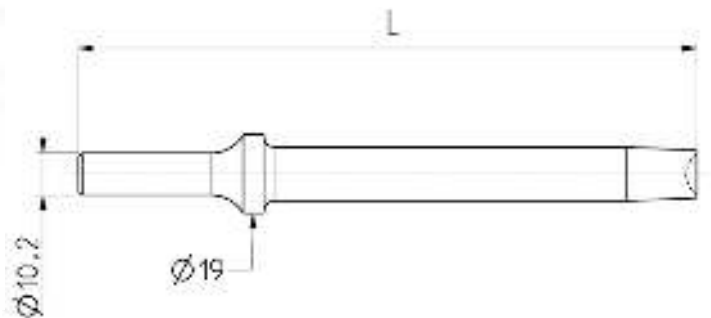
EXPERT INFO

• Recoules manufactures all type of rivet applicable to all current norms. Recoules can manufacture a rivet squeezer set from your rivet.

• Alternative short shank rivet set may be manufacture on request with special lengths.

Rivet Sets F2-F4

RB 6080



E



For universal head rivet type AN470	Rivet Dia		2,4	3,2	4	4,8
			3/32"	1/8"	5/32"	3/16"
L		60	-	-	60802143	60802144
		90	60802241	60802242	60802243	60802244
		150	-	-	60802343	60802344

For flush head rivet type	Rivet Dia		2,4 - 5,6	6,35 - 9,52
			3/32" - 7/32"	1/4" - 3/8"
L	150	60802311	60802316	



Made from alloy steel forged blanks limiting the risk of bursting, our standard snaps are available in different types, lengths and diameters of attachments.

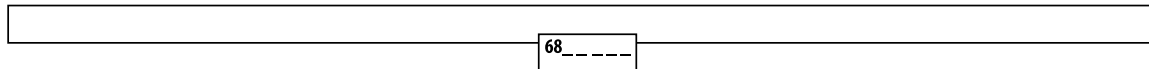
* On request only.

* Other prints on request.

SPECIFICATION	Ø ATTACHEMENT			TOTAL LENGTH						RIVET SQUEEZER TYPE					Ø RIVET SQUEEZER										
	r 3	r 10,2	r 12,7							FLUSH HEAD															
	mm	9,9	10,2	12,7	60	90	150	190	340	250	UNIVERSAL HEAD				UNIVERSAL HEAD										
inch	.390	.401	.498	2 ¹ / ₂	3 ¹ / ₂	6"	7 ¹ / ₂	13 ¹ / ₂	9 ⁵ / ₁₆	AN 430	AN 455	AN 470	ASNA 2020	2,4 ↓ 5,60	6,35 ↓ 9,52	2,4	3,2	4	4,8	5,6	6,35	7,94	9,52		
														3/32 ↓ 7/32	1/4 ↓ 3/8	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"	3/8"		
CODIFICATION	BASIC PART NUMBER	1	2	3	1	2	3	4	5	6	1	2	3	4	5	1	6	1	2	3	4	5	6	7	8
	6080	○	●	○	●	●	●	●	○	●	●	○	○	●	●	●	●	●	●	●	●	○	●		
	6081	○	●	○		●	●	●	○	●	●	○	○	●	●	●	●	●	●	●	○	●			
	6082		○	○		○		○		○	○	○	○	○	○		○							○	○
	*6083		○	○		○		○		○	○	○	○	○	○		○							○	○
	*6084	○	●	○				●		○	●	○	○	●	●	●		●	●	●	●	○			
	*6085	○	●	○			●				●	○	○	●	●	●	●	●	●	●	○				

● Standard
○ On request

NORMS			
	USA	GERMANY	FRANCE
Universal Head	AN 470	LN 9198	L 21215
Brazier Head	AN 455		L 21211
Reduced Universal Head			NSA 5411 Rivet Titanium Squeezer NSA 5415 Monel Rivet
Round Head	AN 430		



60 802 316 EXAMPLE : 6080 Straight type - Shank .401" dia - Length 6"
- For flush head rivets 1/4" dia.

60 823 247 EXAMPLE : 6082 Straight type - Shank .498" dia - Length 3" 1/2"
- For universal head AN 470 rivet 5/16" dia.

RB6081/RB6082/
RB6083/RB6084/RB6085

Rivet Sets

Recoules
Quackenbush

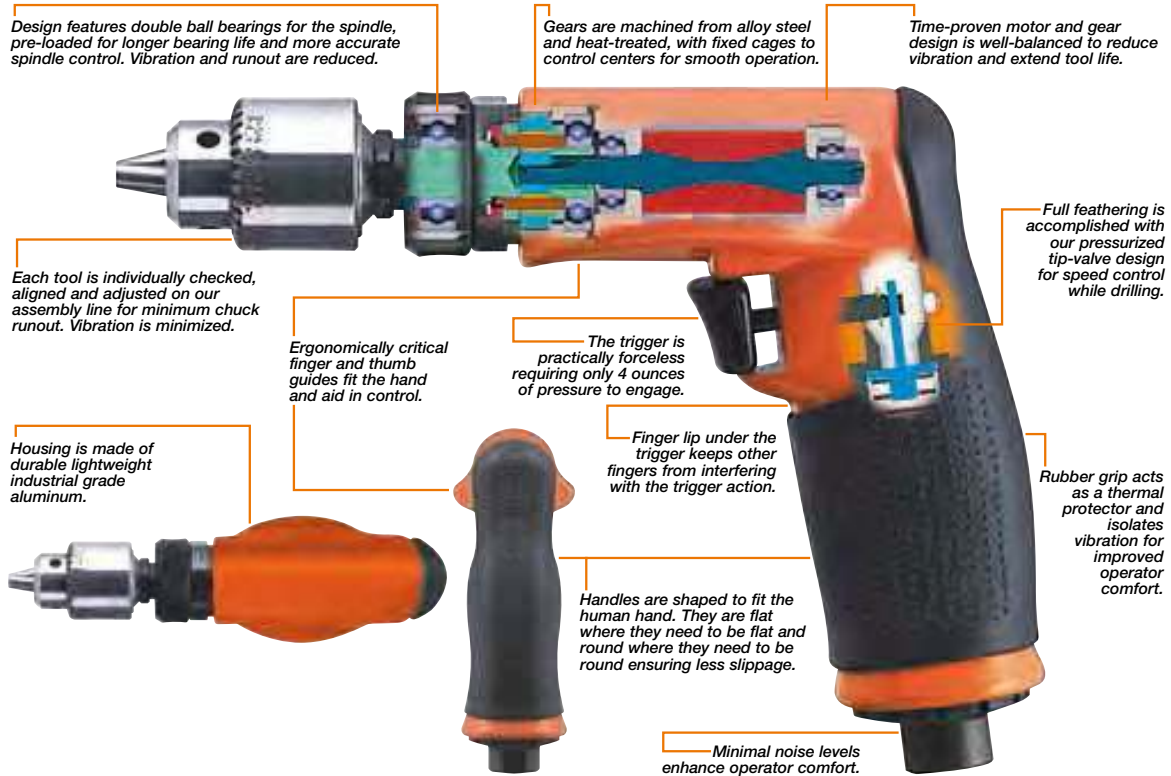
Dotco Drills + Adaptators & Flat Offset Angle Drill



F

ADVANTAGES

- Parts Interchangeability
- Precision Manufactured Parts.
- Latest Ergonomics - Adapted to the Human Hand
- A Wonder of Technology and Ergonomics



Pistol Grip Drills



Inline Drills



Right Angle Drills



Pistol Grip Drills

Serie 14

14CF Series - Non-Reversible

600 - 29,000 RPM
0.4 hp (0.30 kW)



DESCRIPTION

- Equipped with Jacobs® geared chuck and chuck key.
- Non reversible.
- Composite housing with ergonomic finger and thumb guides to aid control.
- Excellent for aerospace, metal fabrication, and wood working application.

Termination Cat. No.			Free Speed (rpm)	Weight	Length	Air Inlet Size
1/4" Chuck	3/8" Chuck	External Thread 3/8"-24				
14CFS97-38	14CFS97-51	14CFS97-40	600	1.8 lb 0.82 kg	6.9 in 175 mm	1/4 in
14CFS96-38	14CFS96-51	14CFS96-40	700	1.8 lb 0.82 kg	6.9 in 175 mm	1/4 in
14CFS95-38	14CFS95-51	14CFS95-40	1,000	1.8 lb 0.82 kg	6.9 in 175 mm	1/4 in
14CFS94-38	14CFS94-51	14CFS94-40	2,400	1.6 lb 0.73 kg	5.7 in 145 mm	1/4 in
14CFS93-38	14CFS93-51	14CFS93-40	3,200	1.5 lb 0.68 kg	5.7 in 145 mm	1/4 in
14CFS92-38	14CFS92-51	14CFS92-40	3,800	1.5 lb 0.68 kg	5.7 in 145 mm	1/4 in
14CFS91-38	14CFS91-51	14CFS91-40	5,200	1.5 lb 0.68 kg	5.7 in 145 mm	1/4 in
14CFS90-38	14CFS90-51	14CFS90-40	29,000	1.5 lb 0.68 kg	5.7 in 145 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.
Minimum Hose I.D.: 5/16in / 7.9mm
Drill Diameter Capacity Matches Chuck Size

14CS Series- Non-Reversible

500 - 20,000 RPM
0.9 hp (0.45 kW)



DESCRIPTION

- Equipped with Jacobs® geared chuck and chuck key.
- Ergonomically critical finger and thumb guides for the hand to aid control.
- Excellent for aerospace, metal fabrication, and wood working application.
- 1/2" models equipped with dead handle.



Termination Cat. No.			Free Speed (rpm)	Weight	Length	Air Inlet Size
3/8" Chuck	External Thread 3/8"-24	1/4" Chuck				
14CSL97-51	14CSL97-40	—	500	2.9 lb 1.32 kg	8.1 in 206 mm	1/4 in
14CSL95-51	14CSL95-40	—	1,300	2.9 lb 1.32 kg	8.1 in 206 mm	1/4 in
—	14CSL92-40	14CSL92-38	3,200	2.1 lb 0.95 kg	6.3 in 160 mm	1/4 in
—	14CSL91-40	14CSL91-38	5,200	2.1 lb 0.95 kg	6.3 in 160 mm	1/4 in
—	14CSL98-40	14CSL98-38	6,000	2.1 lb 0.95 kg	6.3 in 160 mm	1/4 in
—	14CSL90-40	14CSL90-38	20,000	2.1 lb 0.95 kg	6.3 in 160 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.
Minimum Hose I.D.: 5/16in / 7.9mm
Standard equipment: Jacobs geared chuck, chuck key
Drill Diameter Capacity Matches Chuck Size

Pistol Grip Drills

Serie 14

14CNL Series- Non-Reversible

500 - 20,000 RPM
0.9 hp (0.67 kW)



DESCRIPTION

- Equipped with Jacobs® geared chuck and chuck key.
- Ergonomically critical finger and thumb guides for the hand to aid control.
- Excellent for aerospace, metal fabrication, and wood working application.
- 1/2" models equipped with dead handle.

Termination Cat. No.				Free Speed (rpm)	Weight	Length	Air Inlet Size
3/8" Chuck	External Thread 3/8"-24	Chuck 1/2"	1/4" Chuck				
14CNL97-51	14CNL97-40	14CNL97-53	—	500	3.5 lb 1.59 kg	9.1 in 231 mm	1/4 in
14CNL95-51	14CNL95-40	—	—	1,300	2.8 lb 1.27 kg	8.6 in 218 mm	1/4 in
14CNL92-51	14CNL92-40	14CNL92-53	14CNL92-38	3,200	2.4 lb 1.09 kg	7.2 in 183 mm	1/4 in
14CNL91-51	14CNL91-40	—	—	5,200	2.4 lb 1.09 kg	7.2 in 183 mm	1/4 in
14CNL98-51	14CNL98-40	14CNL98-53	14CNL98-38	6,000	2.2 lb 1.00 kg	6.8 in 173 mm	1/4 in
—	14CNL90-40	—	14CNL90-38	20,000	2.2 lb 1.00 kg	6.8 in 173 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.
Minimum Hose I.D.: 5/16in / 7.9mm
Standard equipment: Jacobs geared chuck, chuck key
Drill diameter capacity matches chuck size.

14CHL Series- Non-Reversible

3,200 - 6,000 RPM
1.4 hp (1.04 kW)



DESCRIPTION

- Available with Jacobs® chuck.
- Powerful motor.
- Rear exhaust.

Cat. No.	Termination	Free Speed (rpm)	Weight	Length	Air Inlet Size
14CHL92-38	Chuck 1/4"	3,200	2.6 lb 1.18 kg	6.5 in 165 mm	1/4 in
14CHL92-40	Ext. Thread 3/8" - 11	3,200	2.4 lb 1.09 kg	5.5 in 140 mm	1/4 in
14CHL92-51	Chuck 3/8"	3,200	2.8 lb 1.27 kg	7.1 in 180 mm	1/4 in
14CHL92-53	Chuck 1/2"	3,200	3.8 lb 1.72 kg	7.4 in 188 mm	1/4 in
14CHL98-38	Chuck 1/4"	6,000	2.6 lb 1.18 kg	6.5 in 165 mm	1/4 in
14CHL98-40	Ext. Thread 3/8" - 11	6,000	2.4 lb 1.09 kg	5.5 in 140 mm	1/4 in
14CHL98-51	Chuck 3/8"	6,000	2.8 lb 1.27 kg	7.1 in 180 mm	1/4 in
14CHL98-53	Chuck 1/2"	6,000	3.8 lb 1.72 kg	7.4 in 188 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.
Drill Diameter Capacity Matches Chuck Size
Minimum hose ID: 5/16 in / 7.9 mm

Pistol Grip Drills

Series 15/135

15DP Series- Non-Reversible

160 - 1,400 RPM
1.0 hp (0.75 kW)



DESCRIPTION

- Excellent for slow speed application.
- Powerful motor.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15DP-1.6B-53	Chuck 1/2"	160	Aluminium	6.0 lb 2.72 kg	9.8 in 249 mm	3/8 in
15DP-4B-53	Chuck 1/2"	400	Aluminium	5.5 lb 2.49 kg	8.5 in 216 mm	3/8 in
15DP-8B-53	Chuck 1/2"	800	Aluminium	5.5 lb 2.49 kg	8.5 in 216 mm	3/8 in
15DP-14B-49	Chuck 3/8"	1,400	Aluminium	4.5 lb 2.04 kg	8.3 in 211 mm	3/8 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: Operating instructions and service manual Dead handles on all models except 15DP-14B 3-Jaw Chuck and Key

General: Air Inlet: 3/8" NPTF, Minimum Hose Size: 3/8", Spindle Thread: 1/2"-20, Spindle Offset: Pistol Grip: 31/32"

Drill Diameter Capacity Matches Chuck Size

Minimum hose ID: 5/16 in / 7.9 mm

135DPV Series- Variable Speed

600 - 2,600 RPM
0.7 hp (0.5 kW)



DESCRIPTION

- Variable speed.
- Calibrated governed speed control.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
135DPV-7B-43	Chuck 1/2"	600	Aluminium	3.6 lb 1.63 kg	9.6 in 244 mm	1/4 in
135DPV-7B-50	Chuck 1/2"	600	Aluminium	3.6 lb 1.63 kg	9.6 in 244 mm	1/4 in
135DPV-14B-50	Chuck 1/2"	1,250	Aluminium	3.4 lb 1.54 kg	9.3 in 236 mm	1/4 in
135DPV-14B-51	Chuck 3/8"	1,250	Aluminium	3.4 lb 1.54 kg	9.3 in 236 mm	1/4 in
135DPV-28B-51	Chuck 3/8"	2,600	Aluminium	3.2 lb 1.45 kg	8.5 in 216 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: Operating instructions, service manual, 3-Jaw Chuck and Key-Jaw Chuck and Key

General: Air Inlet: 1/4in NPT, Minimum Hose Size: 1/4in / 6mm, Spindle Offset: 25/32in / 20mm

Drill Diameter Capacity Matches Chuck Size

F

15LF Series- Inline

600 - 5,300 RPM

0.4 hp (0.30 kW)



DESCRIPTION

- Equipped with Jacobs brand chuck.
- Rear Exhaust.
- Safety lever.

Exhaust Cat. N°		Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
Rear	Front						
15LF087-38		Chuck 1/4"	600	Composite	1.9 lb 0.86 kg	8.6 in 218 mm	1/4 in
15LF087-40		Ext. Thread 3/8" - 24	600	Composite	1.9 lb 0.86 kg	8.6 in 218 mm	1/4 in
15LF086-38		Chuck 1/4"	750	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
—	15LF055-38	Chuck 1/4"	1,000	Composite	1.9 lb 0.86 kg	8.6 in 218 mm	1/4 in
15LF085-38		Chuck 1/4"	1,000	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
15LF085-40		Ext. Thread 3/8" - 24	1,000	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
—	15LF054-38	Chuck 1/4"	2,400	Composite	1.3 lb 0.59 kg	7.3 in 185 mm	1/4 in
15LF084-38		Chuck 1/4"	2,400	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
—	15LF053-38	Chuck 1/4"	3,300	Composite	1.3 lb 0.59 kg	7.3 in 185 mm	1/4 in
15LF083-38		Chuck 1/4"	3,300	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
15LF083-40		Ext. Thread 3/8" - 24	3,300	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
—	15LF052-38	Chuck 1/4"	4,000	Composite	1.3 lb 0.59 kg	7.3 in 185 mm	1/4 in
15LF082-38		Chuck 1/4"	4,000	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
15LF082-40		Ext. Thread 3/8" - 24	4,000	Composite	1.4 lb 0.64 kg	7.3 in 185 mm	1/4 in
—	15LF051-38	Chuck 1/4"	5,300	Composite	1.3 lb 0.59 kg	7.3 in 185 mm	1/4 in
15LF081-38		Chuck 1/4"	5,300	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
15LF081-40		Ext. Thread 3/8" - 24	5,300	Composite	1.4 lb 0.64 kg	8.0 in 203 mm	1/4 in
15LF080-38		Chuck 1/4"	28,500	Composite	0.9 lb 0.41 kg	6.3 in 160 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Minimum Hose I.D.: 1/4in / 6.4mm

Standard Equipment: Jacobs geared chuck, chuck key

Drill diameter capacity matches chuck size.

Flat Offset Angle Drills

Serie 15

15L Series - Flat Offset Angle Drill

2,400 - 3,600 RPM
0.3 hp (0.22 kW)



DESCRIPTION

- Equipped with Jacobs brand chuck.
- Rear Exhaust.
- Safety lever.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Head Height	Air Inlet Size
15L1487-32	Int. Thread 1/4" - 28	1,500	Composite	1.2 lb 0.54 kg	8.0 in 203 mm	3.0 in	1/4 in
15L1487-36	Collet 1/4"	1,500	Composite	1.2 lb 0.54 kg	8.0 in 203 mm	3.0 in	1/4 in
15L1487-38	Chuck 1/4"	1,500	Composite	1.5 lb 0.68 kg	8.0 in 203 mm	3.0 in	1/4 in
15L1488-36	Collet 1/4"	2,400	Composite	1.6 lb 0.73 kg	8.7 in 221 mm	3.0 in	1/4 in
15L1488-38	Chuck 1/4"	2,400	Composite	1.5 lb 0.68 kg	8.0 in 203 mm	3.0 in	1/4 in
15L1489-32	Int. Thread 1/4" - 28	3,600	Composite	1.6 lb 0.73 kg	8.7 in 221 mm	3.0 in	1/4 in
15L1489-36	Collet 1/4"	3,600	Composite	1.6 lb 0.73 kg	8.7 in 221 mm	3.0 in	1/4 in
15L1489-38	Chuck 1/4"	3,600	Composite	1.5 lb 0.68 kg	8.0 in 203 mm	3.0 in	1/4 in
15L1489-51	Chuck 3/8"	3,600	Composite	1.5 lb 0.68 kg	8.0 in 203 mm	3.0 in	1/4 in
15L1470-37	Chuck 5/32"	12,000	Composite	1.2 lb 0.54 kg	6.9 in 175 mm	2.5 in	1/4 in
15L1401-37	Chuck 5/32"	20,000	Composite	1.0 lb 0.45 kg	6.2 in 157 mm	2.5 in	1/4 in
15L1471-37	Chuck 5/32"	20,000	Composite	1.2 lb 0.54 kg	6.9 in 175 mm	2.5 in	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.
Minimum Hose I.D.: 1/4in / 6.4mm
Standard Equipment: Jacobs geared chuck, chuck key
Drill Diameter Capacity Matches Chuck Size

15LF Series - Light Duty Head

600 - 5,300 RPM
0.4 hp (0.30 kW)



DESCRIPTION

- Wide array of speeds, head designs, and spindle threads for all applications.
- High efficiency motor and gear train.
- Comfortable and ergonomic handle.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15LF287-62	Int. Thread 1/4" - 28	600	Composite	1.9 lb 0.86 kg	11.8 in 300 mm	1/4 in
15LF286-62	Int. Thread 1/4" - 28	750	Composite	1.9 lb 0.86 kg	11.8 in 300 mm	1/4 in
15LF285-62	Int. Thread 1/4" - 28	1,000	Composite	1.9 lb 0.86 kg	11.8 in 300 mm	1/4 in
15LF284-62	Int. Thread 1/4" - 28	2,400	Composite	1.8 lb 0.82 kg	11.1 in 282 mm	1/4 in
15LF283-62	Int. Thread 1/4" - 28	3,300	Composite	1.6 lb 0.73 kg	10.7 in 272 mm	1/4 in
15LF282-62	Int. Thread 1/4" - 28	4,000	Composite	1.6 lb 0.73 kg	10.7 in 272 mm	1/4 in
15LF281-62	Int. Thread 1/4" - 28	5,300	Composite	1.6 lb 0.73 kg	10.7 in 272 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.
Standard Equipment: 600 Series Mini Angle Head with 1/4"-28 internal thread

F

Flat Offset Angle Drills

Serie 15

15LS Series - Light Duty Head

500 - 5,430 RPM
0.6 hp (0.45 kW)



DESCRIPTION

- Wide array of speeds, head designs, and spindle threads for all applications.
- High efficiency motor and gear train.
- Comfortable and ergonomic handle.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15LS287-62	Int. Thread 1/4" - 28	500	Composite	1.9 lb 0.86 kg	12.7 in 323 mm	1/4 in
15LS286-62	Int. Thread 1/4" - 28	840	Composite	1.9 lb 0.86 kg	12.7 in 323 mm	1/4 in
15LS285-62	Int. Thread 1/4" - 28	1,360	Composite	1.9 lb 0.86 kg	12.7 in 323 mm	1/4 in
15LS284-62	Int. Thread 1/4" - 28	1,660	Composite	1.9 lb 0.86 kg	12.7 in 323 mm	1/4 in
15LS283-62	Int. Thread 1/4" - 28	2,010	Composite	2.3 lb 1.04 kg	11.5 in 292 mm	1/4 in
15LS282-62	Int. Thread 1/4" - 28	3,370	Composite	2.3 lb 1.04 kg	11.5 in 292 mm	1/4 in
15LS281-62	Int. Thread 1/4" - 28	5,430	Composite	2.3 lb 1.04 kg	11.5 in 292 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: 600 Series Mini Angle Head with 1/4"-28 internal thread

15LN - Series Light Duty Head

540 - 5,600 RPM
0.9 hp (0.67 kW)



Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Head Height	Air Inlet Size
15LN287-62	Int. Thread 1/4" - 28	320	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in
15LN286-62	Int. Thread 1/4" - 28	540	Composite	2.5 lb 1.13 kg	13.5 in 343 mm	1.0 in	1/4 in
15LN285-62	Int. Thread 1/4" - 28	1,000	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in
15LN284-62	Int. Thread 1/4" - 28	1,530	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in
15LN283-62	Int. Thread 1/4" - 28	1,850	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in
15LN282-62	Int. Thread 1/4" - 28	3,100	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in
15LN281-62	Int. Thread 1/4" - 28	5,000	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in
15LN288-62	Int. Thread 1/4" - 28	5,600	Composite	2.5 lb 1.13 kg	12.0 in 305 mm	1.0 in	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: 600 Series Mini Angle Head with 1/4"-28 internal thread

15LF Series - Heavy Duty Head

420 - 3,700 RPM
0.4 hp (0.30 kW)



DESCRIPTION

- Wide array of speeds, head designs, and spindle threads for all applications.
- Reinforced angle head for added durability.
- Comfortable and ergonomic handle.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15LF287-52	Int. Thread 1/4" - 28	420	Composite	2.0 lb 0.91 kg	12.0 in 305 mm	1/4 in
15LF286-52	Int. Thread 1/4" - 28	525	Composite	2.0 lb 0.91 kg	12.0 in 305 mm	1/4 in
15LF285-52	Int. Thread 1/4" - 28	700	Composite	2.0 lb 0.91 kg	12.0 in 305 mm	1/4 in
15LF284-52	Int. Thread 1/4" - 28	1,700	Composite	1.8 lb 0.82 kg	10.6 in 269 mm	1/4 in
15LF283-52	Int. Thread 1/4" - 28	2,300	Composite	1.7 lb 0.77 kg	11.0 in 279 mm	1/4 in
15LF282-52	Int. Thread 1/4" - 28	2,800	Composite	1.7 lb 0.77 kg	11.0 in 279 mm	1/4 in
15LF281-52	Int. Thread 1/4" - 28	3,700	Composite	1.7 lb 0.77 kg	11.0 in 279 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: 500 Series Heavy Duty Angle Head with 1/4"-28

Flat Offset Angle Drills

Serie 15

15LS Series- Heavy Duty Head

350 - 3,800 RPM

0.6 hp (0.45 kW)



DESCRIPTION

- Wide array of speeds, head designs, and spindle threads for all applications.
- Reinforced angle head for added durability.
- Comfortable and ergonomic handle.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15LS287-52	Int. Thread 1/4" - 28	350	Composite	2.8 lb 1.27 kg	12.3 in 312 mm	1/4 in
15LS286-52	Int. Thread 1/4" - 28	590	Composite	2.8 lb 1.27 kg	12.3 in 312 mm	1/4 in
15LS285-52	Int. Thread 1/4" - 28	950	Composite	2.8 lb 1.27 kg	12.3 in 312 mm	1/4 in
15LS283-52	Int. Thread 1/4" - 28	1,410	Composite	2.4 lb 1.09 kg	11.0 in 279 mm	1/4 in
15LS282-52	Int. Thread 1/4" - 28	2,360	Composite	2.4 lb 1.09 kg	11.0 in 279 mm	1/4 in
15LS281-52	Int. Thread 1/4" - 28	3,800	Composite	2.4 lb 1.09 kg	11.0 in 279 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: 500 Series Heavy Duty Angle Head with 1/4"-28

15LN Series - Heavy Duty Head

320 - 3,900 RPM

0.9 hp (0.67 kW)



DESCRIPTION

- Wide array of speeds, head designs, and spindle threads for all applications.
- Reinforced angle head for added durability.
- Comfortable and ergonomic handle.

Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15LN286-52	Int. Thread 1/4" - 28	540	Composite	3.0 lb 1.36 kg	12.8 in 325 mm	1/4 in
15LN285-52	Int. Thread 1/4" - 28	870	Composite	3.0 lb 1.36 kg	12.8 in 325 mm	1/4 in
15LN284-52	Int. Thread 1/4" - 28	1,070	Composite	3.0 lb 1.36 kg	12.8 in 325 mm	1/4 in
15LN283-52	Int. Thread 1/4" - 28	1,300	Composite	2.6 lb 1.18 kg	11.5 in 292 mm	1/4 in
15LN281-52	Int. Thread 1/4" - 28	3,500	Composite	2.6 lb 1.18 kg	11.5 in 292 mm	1/4 in
15LN288-52	Int. Thread 1/4" - 28	3,900	Composite	2.6 lb 1.18 kg	11.5 in 292 mm	1/4 in

All tools performance rated @ 90psi / 620 kPa air pressure.

Standard Equipment: 500 Series Heavy Duty Angle Head with 1/4"-28

Drill Accessories

Mini Chucks

For use with DOTCO 12-12 series. To adapt Flat Offset Angle Drill threaded spindle sanders for drilling, disc sanding with PSA holders, and light grinding.

Shank Size	Assembly	Collet
1/8"	14-1102*	14-0158**
1/4"	14-1104*	14-0168***
6 mm	14-1094*	14-0170***



* For 1/4"-28 Internal Thread.

** For 5/16"-24 Internal Thread – 1/8" Collet.

*** For 3/8"-24 Internal Thread – 1/4" Collet.

Cone Jaw Chuck

Part N°	Description
1020699	1/4" capacity with a 1/4"-28 male thread



Jacobs® Chucks

Part N°	Thread Size	Capacity	Description	Term.
1005078	3/8"-24	1/4"	1 BA	-38
1001505	3/8"-24	1/4" HD	7 BA	-42
1001252	3/8"-24	3/8"	41 BA (med.duty)	-51
1009726	3/8"-24	1/2"	33 BA	-53
1075	5/16"-24	5/32"	*OB	37



300 Series Collet Chuck

Use with Standard Collet: 1/4" (#308).

Termination Number: -36

Part N°	Description
14-1148	1/64"-1/4" capacity with a 5/16"-24 female thread



Quick-Change Chuck

Part N°	Thread Size	Capacity
QRA-08	3/8"-24	1/4" Hex



Collet Chuck

1/4"-28 Male Thread).

Part N°	Drill Size
863810	3/16"
863806	1/4"



Quick Change Pressure Foot Adapter

For use on 1"-20 external thread tools.

Part N°	Diameter "A"
1110167	1.626/1.623



Dead Handle

Part N°	Drill Model
881580	15



Collets

For use on Dotco 15LF, 15LS & 15LN right angle drills with 9/32"-40 spindles.



Part N°	Drill		
	Size	Dec.	mm
1005180	1/16	.0625	1.6
1005182	3/32	.0937	2.4
1005183	7/64	.1094	2.8
1005184	1/8	.125	3.2
1005185	9/64	.1406	3.6
1005186	5/32	.1562	4.0
1005187	11/64	.1719	4.4
1005188	3/16	.1875	4.8
1006408	53	.0595	1.5
1006412	51	.067	1.7
1005875	46	.081	2.1
1005684	40	.098	2.5
1006395	39	.0995	2.5
1005873	31	.120	3.0
1013904	30	.1285	3.3
1005872	27	.144	3.7
1005926	22	.157	4.0
1005682	21	.159	4.0
1005876	20	.161	4.1
1006035	19	.166	4.2
1005977	17	.173	4.4
1005927	13	.185	4.7
1005871	12	.189	4.8
1006001	11	.191	4.9
1005681	10	.1935	4.9
Termination codes			
- 43, -53, -63, -73, et -9.			

Optional Drill Attachments

For use on Dotco 15LF, 15LS, and 15LN series. Capacity: 1/4" Diameter Drill These drill attachments can be ordered as a separate accessory item or as part of a complete model. To order as a complete model, use the basic model number from the appropriate 15LF, 15LS, or 15LN catalog page and INDEXlace the termination number (-32 for example) with the termination number of the desired optional attachment (-71 for example) from this page.

Part N°	Termination	Spindle Internal Thread
Compact Angle Head – 700 Series		
1025477	-72	1/4"-28
1025476	-73	9/32"-40
1025668	-74	5/16"-24
Light Duty Head – 600 Series		
1025314	-61	#10-32
1025409	-62	1/4"-28
1025313	-63	9/32"-40
1025528	-64	5/16"-24
Heavy Duty Angle Head – 500 Series		
1021289	-52	1/4"-28
1021292	-53	9/32"-40
1021291	-54	5/16"-24
1025780	-55	3/8"-24
45° Light Duty Angle Head		
1025730	-42	1/4"-28
1025731	-43	9/32"-40
1025733	-44	5/16"-24
360° Light Duty Angle Head		
1025696	-91	#10-32
1025694	-92	1/4"-28



1025447



1025409



1021289



1025730



1025694

Part N°	Drill Chuck	
Heavy Duty Angle Head		
1021620	-59	500 Series Angle Head with drill chuck, 1/4" capacity
1021620	-59 NC	500 Series Angle Head, no chuck 3/8"-24 ext. thread



1021620



Modular Drills

Base Modular Quick Change Tools

320 – 5,300 TR/MIN

0.4 hp – 0.9 hp (0.3 kW – 0.7kW)

DESCRIPTION

- Quick release for range of angle head attachments
- Can be used for quick change of: cutter size, drilling speed, head style
- Pull back sleeve to change angle head
- Common drive system retained on power unit



Cat. No.	Termination	Free Speed (rpm)	Type Housing	Weight	Length	Air Inlet Size
15LF281Q	Quick Change Adaptor	3700	5300	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LF282Q	Quick Change Adaptor	2800	4000	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LF283Q	Quick Change Adaptor	2300	3300	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LF284Q	Quick Change Adaptor	1700	2400	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LF285Q	Quick Change Adaptor	700	1000	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LF286Q	Quick Change Adaptor	525	750	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LF287Q	Quick Change Adaptor	420	600	0.4hp/0.3kW	0.65kg/1.43lbs	1/4 in
15LN281Q	Quick Change Adaptor	3500	5000	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in
15LN282Q	Quick Change Adaptor	2170	3100	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in
15LN283Q	Quick Change Adaptor	1300	1850	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in
15LN284Q	Quick Change Adaptor	1070	1530	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in
15LN285Q	Quick Change Adaptor	870	1240	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in
15LN286Q	Quick Change Adaptor	540	770	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in
15LN287Q	Quick Change Adaptor	320	460	0.9hp/0.7kW	1.05kg/2.31lbs	1/4 in

Quick Change Angle Heads

Quick Change Angle Heads

DESCRIPTION

- 45° Light Duty Angle Head
- Light Duty Head: 600 Series
- Heavy Duty Angle Head: 500 Series
- Compact Angle Head: 700 Series
- Heavy Duty Angle Head: 500 Series, Drill Chuck
- 360° Light Duty Angle Head



ORDERING CODE	TERMINATION	TYPE	NOTES
302206PT-Q42	1/4"-28	45° Light Duty Angle Head	
302206PT-Q43	Collet (9/32"-40)	45° Light Duty Angle Head	*Order Collets Separately: See Chart
302206PT-Q52	1/4"-28	Heavy Duty Angle Head - 500 Series	
302206PT-Q53	Collet (9/32"-40)	Heavy Duty Angle Head - 500 Series	*Order Collets Separately: See Chart
302206PT-Q59	3/8"-24	Heavy Duty Angle Head - 500 Series	*Order Collets Separately: See Chart
302206PT-Q62	1/4"-28	Light Duty Head - 600 Series	
302206PT-Q63	Collet (9/32"-40)	Light Duty Head - 600 Series	*Order Collets Separately: See Chart
302206PT-Q72	1/4"-28	Compact Angle Head - 700 Series	
302206PT-Q73	Collet (9/32"-40)	Compact Angle Head - 700 Series	*Order Collets Separately: See Chart
302206PT-Q92	1/4"-28	360° Light Duty Angle Head	
302206PT-Q93	Collet (9/32"-40)	360° Light Duty Angle Head	*Order Collets Separately: See Chart

Modular Drills

Collets

For -Q43 | -Q53 | -Q63
-Q73 | -Q93 Angle Heads



CAT. NO.	Size	Dec.	mm
1006408	53	0.060	1.51
1005180	1/16	0.063	1.59
1006412	51	0.067	1.70
1005875	46	0.081	2.06
1005182	3/32	0.094	2.38
1005684	40	0.098	2.49
1006395	39	0.100	2.53
1005183	7/64	0.109	2.78
1005873	31	0.12	3.05
1005184	1/8	0.125	3.18
1013904	30	0.129	3.26
1005185	9/64	0.141	3.57
1005872	27	0.144	3.66
1005186	5/32	0.156	3.97
1005926	22	0.157	3.99
1005682	21	0.159	4.04
1005876	20	0.161	4.09
1006035	19	0.166	4.22
1005187	11/64	0.172	4.37
1005977	17	0.173	4.39
1005927	13	0.185	4.70
1005188	3/16	0.188	4.76
1005871	12	0.189	4.80
1006001	11	0.191	4.85
1005681	10	0.194	4.91

JACOBS® Chucks



Keyless

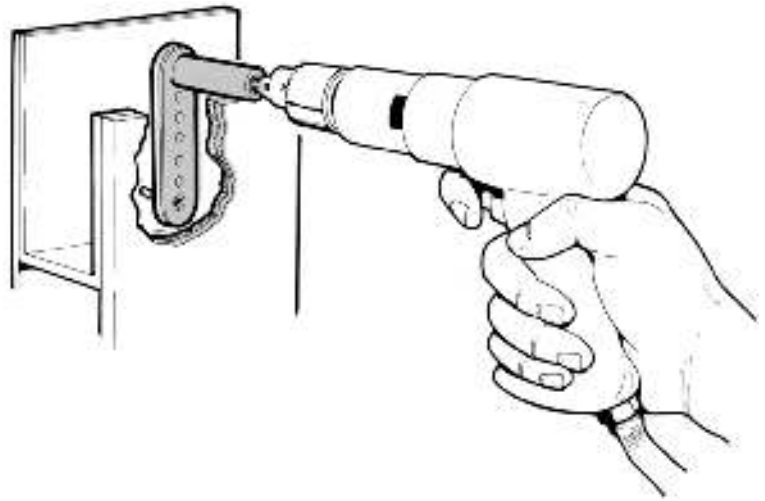
With Key

MODEL NUMBER	TYPE		CAPACITY	TERMINATION
1005078	With Key	1/4"	6.3mm	3/8"-24
1001505	With Key	1/4" HD	6.3mm	3/8"-24
1001252	With Key	3/8"	9.5mm	3/8"-24
1009726	With Key	1/2"	12.7mm	3/8"-24
33633	Keyless	5/16"	8.0mm	3/8"-24
33663D	Keyless	25/64"	10.0mm	3/8"-24



Flat Offset Angle Drill

**RB 106
UNF 10-21F**



Using cutters
of UNF 10-32F
thread



Tool Attachement	A	B	CODE
UNF 10-32 F	84	28	10080005
	84	112,5	10080010
	63	28	10080015
	63	112,5	10080020

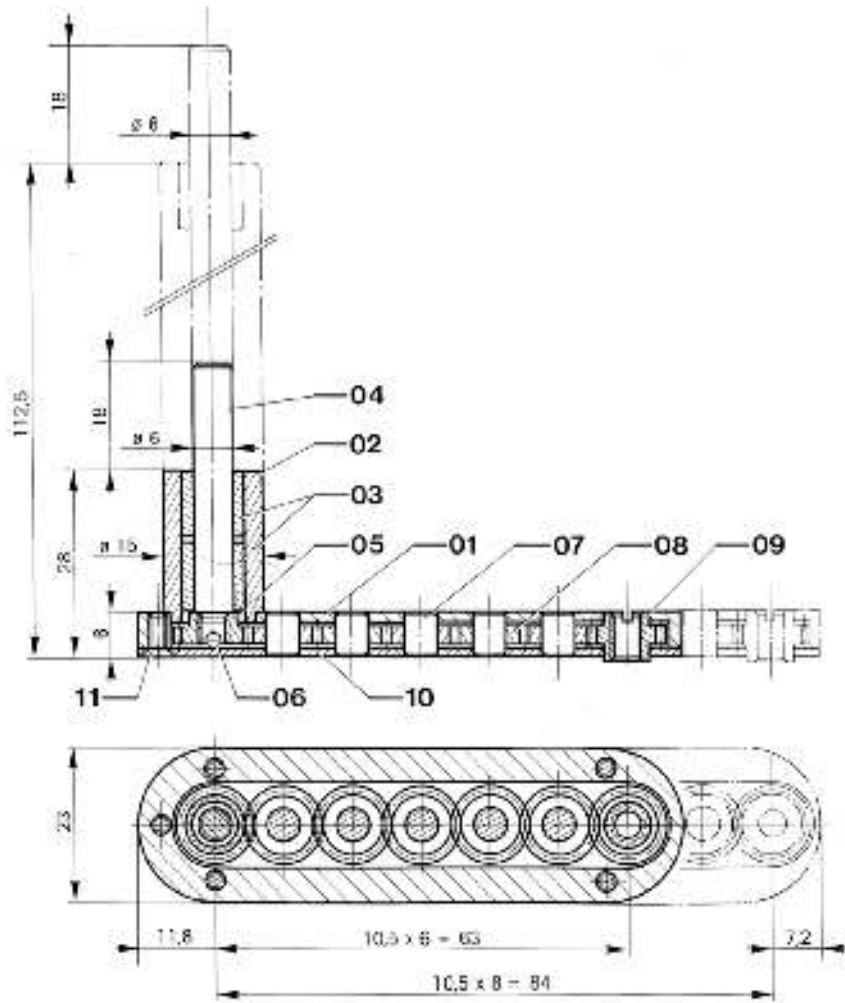


EXPERT INFO

- Please note: Possibility to use conventional drills by adding a Dotco collet.

Flat Offset Angle Drill

**RB 106
UNF 10-21F**



DESCRIPTION	INDEX	QTY	REFERENCE spare parts	
Body	1	1	90420000	90420000
Sleeve	2	1	90620095	90620205
Shaft	3	2	90205075	90205075
Shaft	4	1	90030095	90030100
Gear drive	5	1	93030358	93030358
Ball 2 mm dia	6	1	90245100	90245100
Pin	7	7	90030671	90030671
Gear	8	7	93030060	93030060
Gear spindle	9	1	93030230	93030230
Cover	10	1	90525010	90525010
Screw	11	7	RC-94230010	RC-94230010
Item part number			10080005	10080010

DESCRIPTION	INDEX	QTY	REFERENCE spare parts	
Body	1	1	90420320	90420320
Sleeve	2	1	90620095	90620205
Shaft	3	2	90205075	90205075
Shaft	4	1	90030095	90030100
Gear drive	5	1	93030358	93030358
Ball 2 mm dia	6	1	90245100	90245100
Pin	7	7	90030671	90030671
Gear	8	7	93030060	93030060
Gear spindle	9	1	93030230	93030230
Cover	10	1	90525127	90525127
Screw	11	7	RC-94230010	RC-94230010
Item part number			10080015	10080020

TECHNICAL DATA

Shank dia : 0.236"

Maximum drilling capacity : 0.1968"

Maximum countersinking capacity : 0.5937"

Weight : 105 - 220 g

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (see Chapter F).
- For cutter selection, refer to Chapter C.
- On request, we can supply special offset angle drill to customer specifications.
- Please contact your normal customer service representative and indicate dimensions A and B when ordering.

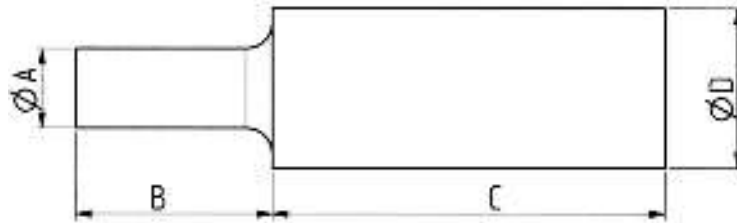


F

Drilling Adaptors

PRECISE MANUFACTURE

■ In some cases, microstop cages are impractical or too bulky to be used. It is then recommended to fit our cutters to the drilling equipment by means of the following adaptors



For cutter thread	Ø A		B mm	C mm	Ø D mm	CODE	
	mm	inch					
M6 X 1	4	0.157"	15	15	10	10090000	
M6 X 1	6	0.236"	20	30	10	10090050	
M8 X 1	6	0.236"	20	30	12	10090055	
M8 X 1	8	0.315"	20	30	14	10090100	
M10 X 1	10	0.394"	20	30	14	10090150	

EXPERT ADVICE

- Recoules recommends the use of Dotco material removal tools 14 CFS (see Chapter F).
- For cutter selection, refer to Chapter C.



• On request, we can supply all special adaptors with a morse taper N°1, N°2 or N°3.

Back Spotfacer

**RB 1130 &
RB 1130 - 2**



Back Spotfacer
RB 1130 (0,6 cv)

70100012



Back Spotfacer
RB 1130-2 (0,7 cv)

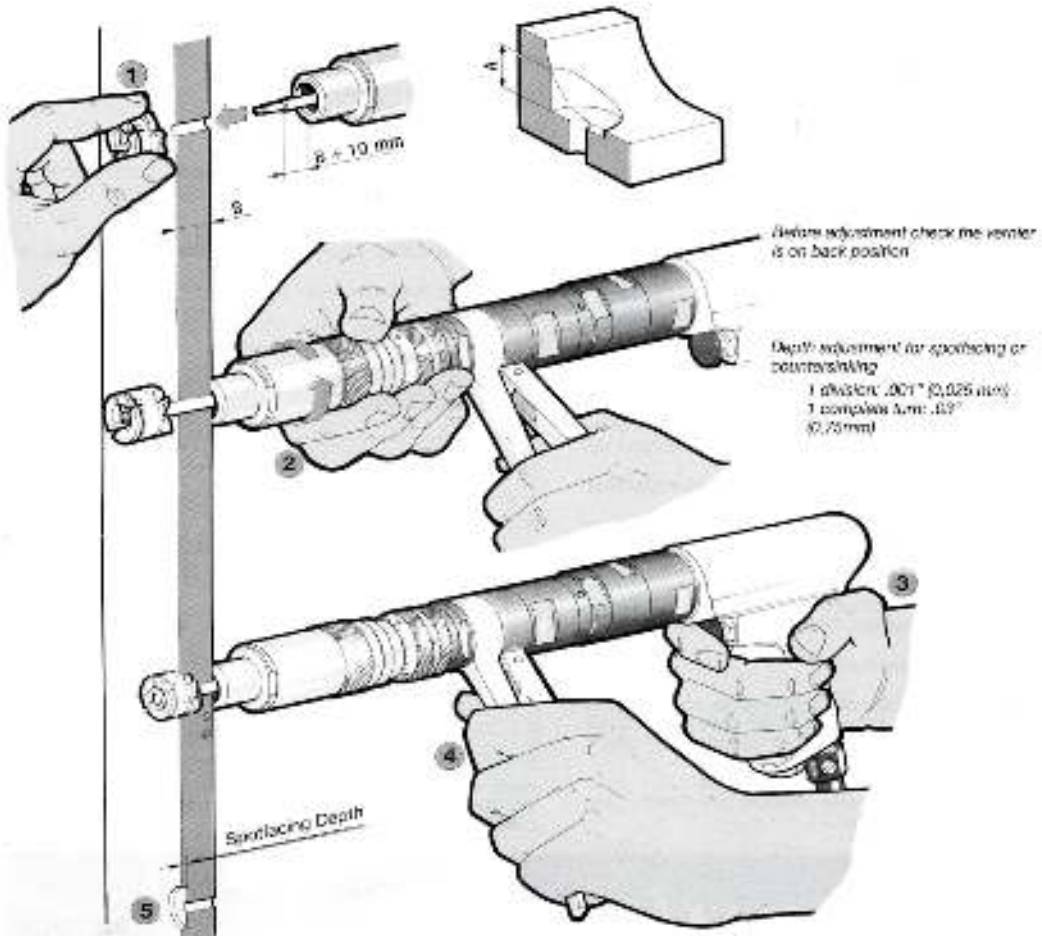
70100031

DESCRIPTION AND ADVANTAGES

- Tool with micrometric adjustment , has been especially designed for all back-spotfacing operations with an accuracy of .001”.
- Fixed speed (RB 1130) or adjustable speed (RB 1130-2) for use in light alloys or steel.
- Machine design provides smooth and easy feed without strain on the operator.
- All Recoules standard pilots and back-spotfacing cutters can be used on this machine (see chapter C cutting tools).
- Wide range of interchangeable collets.
- Quick mounting nosepiece provides easy access to collet.
- Feed lever with 360° orientation.

Model	Motor Configuration	Std Stroke		Std Spindle Speed Rpm	Spotfacing capacity		Accessories
		mm	In.		Light Alloys	Steel and Titanium	
RB 1130	Pistol Grip	10 mm	3/8"	460	Ø 30mm - 1.181"	Ø 20mm - 0.787"	See Collets charts
RB 1130-2	Pistol Grip	15 mm	0.06"	150-550	Ø 30mm - 1.181"	Ø 20mm - 0.787"	See Collets charts





Standard Collets		
Standard Diameter		Code Collet
mm	Inch	
2	0.0787"	70110200
2,5	0.098"	70110250
3	0.1181"	70110300
3,5		70110350
4	5/32"	70110400
4,8	3/16"	70110480
5	0.1968"	70110500
5,5		70110550
6	0.2362"	70110600
6,35	1/4"	70110635
7,94	5/16"	70110794
9,52	3/8"	70110952

How to order a collet dia 3,17mm

Basic Code

Collet dia in 100th of mm

70.110

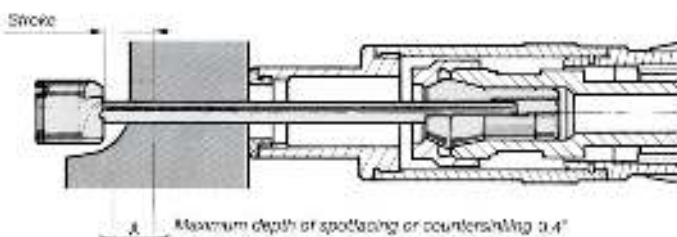
+

317

70.110.317

Code to indicate

- Alternative collets diameters available on request.



EXPERT INFO

- Precisely backsportfacing and countersinking operation with the micrometric adjustment similar to the Recoules cages.



Drilling Guides	Code number
Tripode RB 240	70300005
Quadripode RB 245	70300010

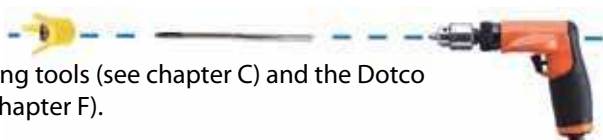
DESCRIPTION AND ADVANTAGES

- The RB 240 is an injection moulded polyamide nylon tripod with a knurled steel sleeve, especially designed to use on any surface.
- The RB 245 is an injection moulded polyamide nylon quadripod with a knurled steel sleeve and interchangeable aluminium mounting base (code number 90820085) with 4 nylons studs (code number 93045030). Especially designed to use on curved components. The operator has direct control over perpendicularity as three legs only out of four are in contact with the surface when the tool position is not correct.
- These drill guides, simple and sturdy, can be fitted with a removable drill bush of tempered high speed steel.
- The drill bush is slide fit to H7g6 with a m6 fit on the last 3 mm.

F

EXPERT ADVICE

- To use with our cutting tools (see chapter C) and the Dotco Removal tools (see chapter F).





DESCRIPTION AND ADVANTAGES

- We can supply all drilling bushes from 0.039" up to 0.47" dia.
- All our bushes are manufactured with a tolerance of +0.0006" / +0 on the nominal diameter.

How to order

For $\leq 0.3933"$

Example :

Bush 0.1275" dia
Mini dia 0.1275" dia
Maxi dia 0.1281" dia

Basic Code

70.310

+

Collet dia in 100th of mm

324

70310324

Code to indicate

How to order

For dia 0.3937" to 0.4724"

Example :

Bush 0.4468" dia
Mini dia 0.4468" dia
Maxi dia 0.4474" dia

Basic Code

70.311

+

Collet dia in 100th of mm

135

70311135

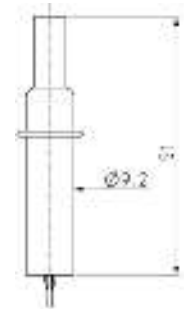
Code to indicate

RB 101 Serie C



Diameter		Color	Grip range		Code
mm	inch		mm	inch	
2,40	3/32	Zinc	0 - 6,35	0 - 1/4	50001024PT
3,20	1/8	Copper	0 - 6,35	0 - 1/4	50001032PT
4,00	5/32	Black	0 - 6,35	0 - 1/4	50001040PT
4,80	3/16	Brass	0 - 6,35	0 - 1/4	50001048

Standard fasteners for normal clamping force requirements.

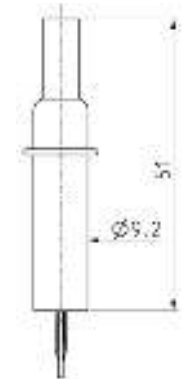


RB 101 Serie CL



Diameter		Color	Grip range		Code
mm	inch		mm	inch	
2,40	3/32	Zinc	6,35 - 12,7	1/4 - 1/2	50001124PT
3,20	1/8	Copper	6,35 - 12,7	1/4 - 1/2	50001132PT
4,00	5/32	Black	6,35 - 12,7	1/4 - 1/2	50001140PT
4,80	3/16	Brass	6,35 - 12,7	1/4 - 1/2	50001148PT

Standard fasteners for normal clamping force requirements.

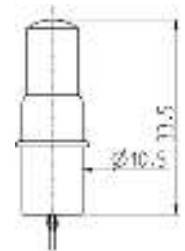


RB 102 Serie CC



Diameter		Color	Grip range		Code
mm	inch		mm	inch	
2,40	3/32	Zinc	0 - 6,35	0 - 1/4	50002024PT
3,20	1/8	Copper	0 - 6,35	0 - 1/4	50002032PT
4,00	5/32	Black	0 - 6,35	0 - 1/4	50002040PT
4,80	3/16	Brass	0 - 6,35	0 - 1/4	50002048

Designed for normal clamping force in more confined work areas.

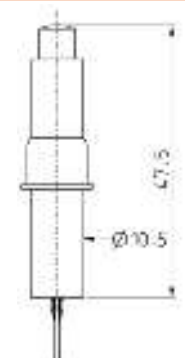


RB 102 Serie CHD



Diameter		Color	Grip range		Code
mm	inch		mm	inch	
2,40	3/32	Zinc	0 - 12,7	0 - 1/2	50002224PT
3,20	1/8	Copper	0 - 12,7	0 - 1/2	50002232PT
4,00	5/32	Black	0 - 12,7	0 - 1/2	50002240PT
4,80	3/16	Brass	0 - 12,7	0 - 1/2	50002248

Heavy duty fasteners for use where normal clamping force and longer grip range capacities are required.



RB 130



Code number

50100005

Manually operated fasteners installation tool.

F

Pneumatic Screwdrivers



Pistol Grip Fastening Solutions For Frangible Collars

FCA 19PTA09Q

FCA 19PTA09Q	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



470 RPM
1.2 ~ 6.2 Nm

*DBS if back drive socket

Torque Option		
Code	Max Torque	Offset Distance
60	6.0 Nm (4.4 lbf-ft)	65.6 mm (2.6")
62	6.2 Nm (4.6 lbf-ft)	51.5 mm (2.0")

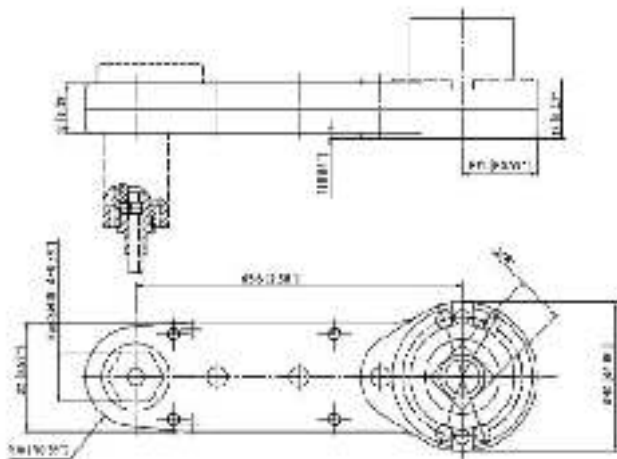
Shaft Length	
Code	Length
L127I	127mm*
L65I	65 mm*

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16
K	8.73	11/32
L	9.53	3/8

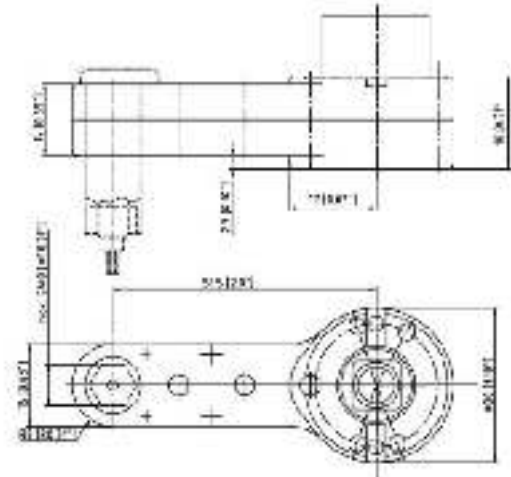
* with indexing

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8

Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 60



Torque Option 62

Pistol Grip Fastening Solutions For Frangible Collars

FCA 19PTA15Q

FCA 19PTA15Q	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



260 RPM
3.5 ~ 11.7 Nm

*DBS if back drive socket

Torque Option		
Code	Max Torque	Offset Distance
95	9.5 Nm (7.0 lbf-ft)	25.8 mm (1.01")
100	10.0 Nm (7.4 lbf-ft)	65.6 mm (2.58")
117	11.7 Nm (8.6 lbf-ft)	32.8 mm (1.29")

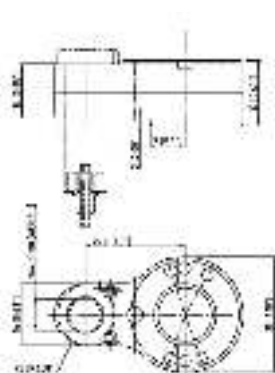
Shaft Length	
Code	Length
L127I	127mm*
L65I	65mm*

* with indexing

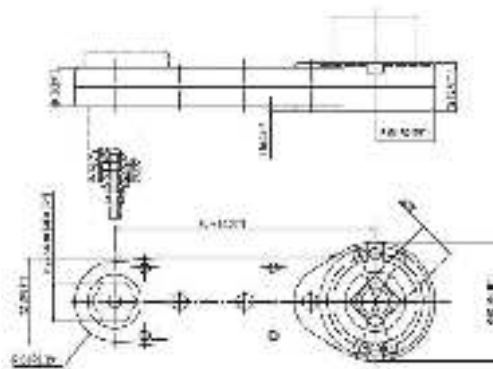
Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16
K	8.73	11/32
L	9.53	3/8

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8

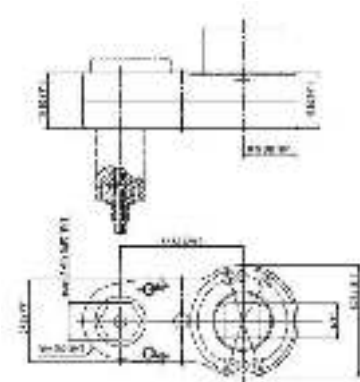
Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 95



Torque Option 100



Torque Option 117

Pistol Grip Fastening Solutions For Frangible Collars

FCA 88RSATP-2CQ

FCA 88RSATP-2CQ	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



200 RPM
1.0 ~ 16.0 Nm

*DBS if back drive socket

Torque Option		
Code	Max Torque	Offset Distance
119	11.9 Nm (8.8 lbf-ft)	25.8 mm (1.01")
138	13.8 Nm (10.2 lbf-ft)	65.6 mm (2.58")
159	15.9 Nm (11.7 lbf-ft)	32.8 mm (1.29")

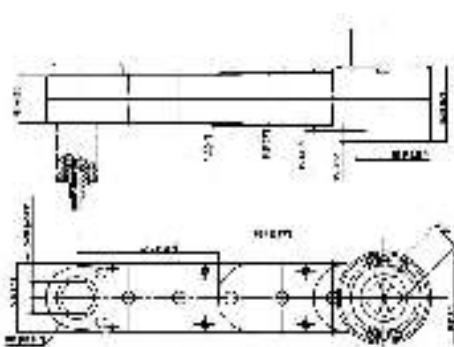
Shaft Length	
Code	Length
L127I	127mm*
L65I	65 mm*

* with indexing

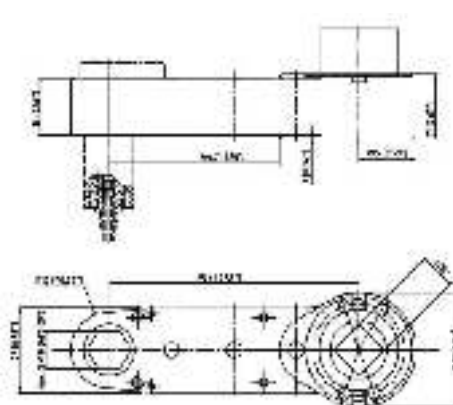
Socket Dimensions		
Code	mm	inch
H	7.14	9/32
I	7.94	5/16
K	8.73	11/32
L	9.53	3/8
M	11	13/30
O	11.11	7/16
Q	13	22/43

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8

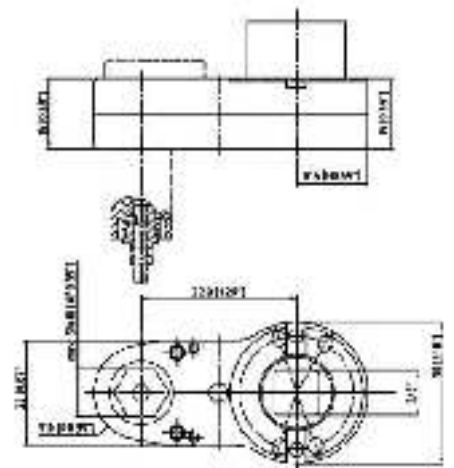
Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 119



Torque Option 138



Torque Option 159

Angle Head Fastening Solutions (90° & 110°) For Frangible Collars

FCA 19RAA11AH3

FCA 19RAA11AH3	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					

*DBS if back drive socket



453 RPM
1.1 ~ 6.4 Nm

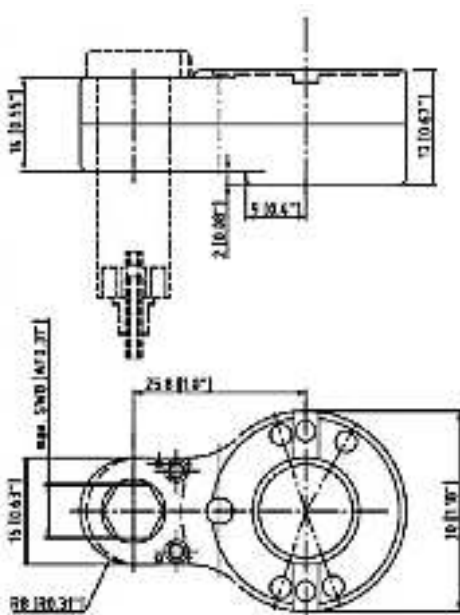
Torque Option		
Code	Max Torque	Offset Distance
64	6.4 Nm (4.7 lbf-ft)	25.8 mm (1.0")

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 64

Angle Head Fastening Solutions (90° & 110°) For Frangible Collars

FCA 19RAA12AH3

FCA 19RAA12AH3	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



267 RPM
1.1 ~ 6.4 Nm

*DBS if back drive socket

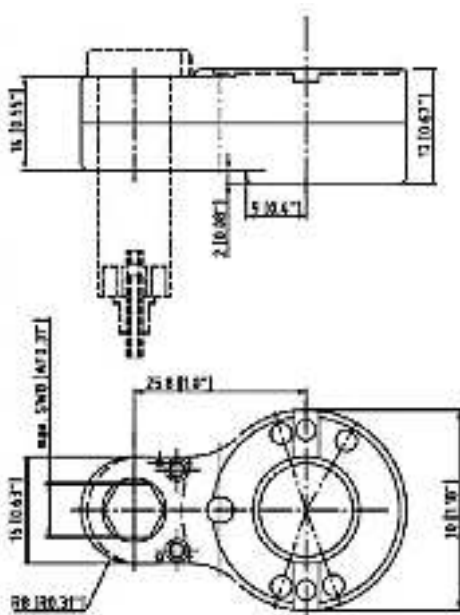
Torque Option		
Code	Max Torque	Offset Distance
72	7.3 Nm (5.38 lbf-ft)	25.8 mm (1.0")

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque option 64

Angle Head Fastening Solutions (90° & 110°) For Frangible Collars

FCA 24RAA23AM

FCA 24RAA23AM	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



840 RPM
6.4 ~ 14.3 Nm

*DBS if back drive socket

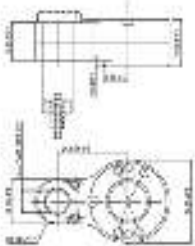
Torque Option		
Code	Max Torque	Offset Distance
95	9.5 Nm (7.0 lbf-ft)	25.8 mm (1.0")
110	11.0 Nm (8.1 lbf-ft)	65.6 mm (2.58")
123	12.4 Nm (9.1 lbf-ft)	32.8 mm (1.29")
143	14.3 Nm (10.5 lbf-ft)	32.8 mm (1.29")

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

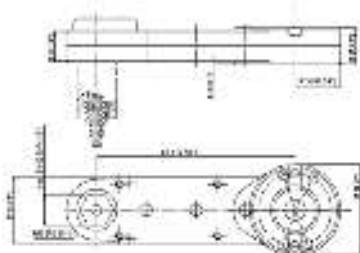
Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16
K	8.73	11/32
L	9.53	3/8

Bit dimensions	
Code	mm
2	1.59
3	1.98
5	2.38
7	3.18

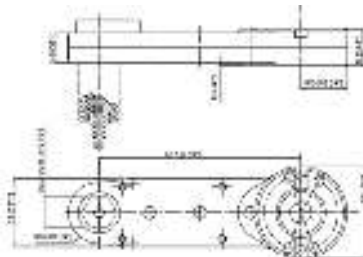
Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



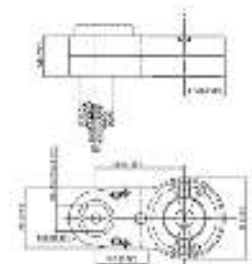
Torque Option 95



Torque Option 123



Torque Option 110



Torque Option 147

Angle Head Fastening Solutions (90° & 110°) For Frangible Collars

FCA 34RAA47AH4

FCA 34RAA47AX3	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



539 RPM
12 ~ 24 Nm

*DBS if back drive socket

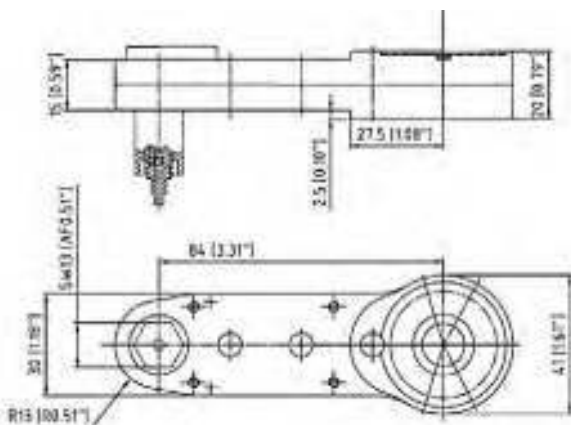
Torque Option		
Code	Max Torque	Offset Distance
238	23.9 Nm (17.6lbf-ft)	84.0 mm (3.31")

Bit dimensions		
Code	mm	inch
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8
8	3.97	5/32

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
L	9.53	3/8
O	11.11	7/16
P	12.70	1/2

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 238

Pistol Grip Fastening Solutions With Torque Control

TCHDA 19TTA04Q

TCHDA 19TTA04Q	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



1100/ 1034 RPM
0.6 ~ 3.0 Nm

*DBS if back drive socket

Torque Option			
Code	Speed	Max Torque	Offset Distance
24	1034	2.4 Nm (1.8 lbf-ft)	97.9 mm (3.85")
29	1100	3.0 Nm (2.2 lbf-ft)	65.1 mm (2.56")

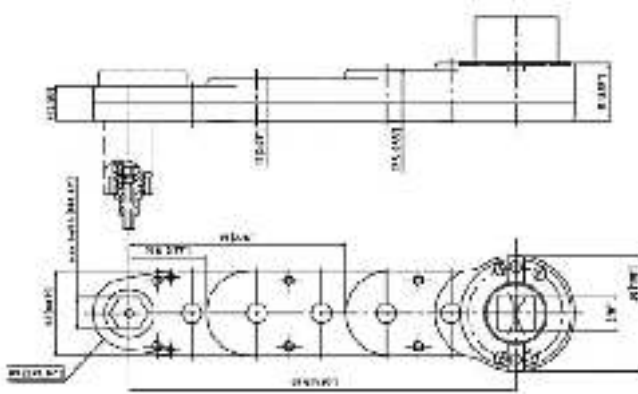
Shaft Length	
Code	Length
L127I	127mm*
L65I	65 mm*

* with indexing

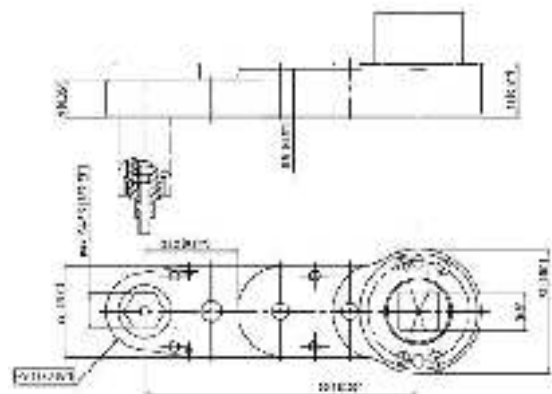
Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Bit dimensions	
Code	mm
2	1.59
3	1.98

Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 24



Torque Option 29



Pistol Grip Fastening Solutions With Torque Control

TCHDA 19TTA07Q

TCHDA 19TTA07Q	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



**620/660 RPM
1.5 ~ 4.7 Nm**

*DBS if back drive socket

Torque Option			
Code	Speed	Max Torque	Offset Distance
38	620	3.8 Nm (2.8 lbf-ft)	97.9 mm (3.85")
47	660	4.7 Nm (3.5 lbf-ft)	65.1 mm (2.56")

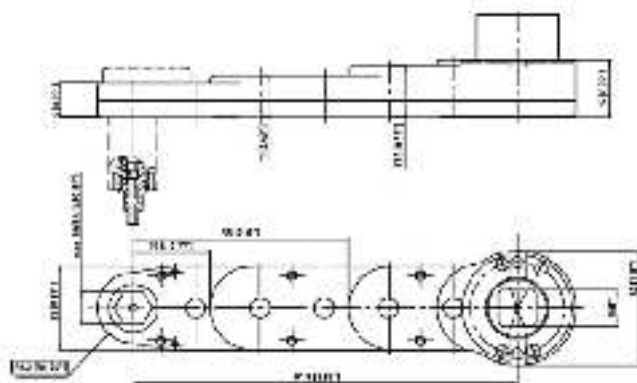
Shaft Length	
Code	Length
L127I	127 mm*
L65I	65 mm*

*with indexing

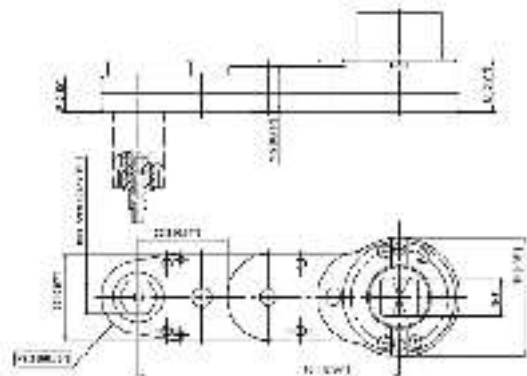
Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 38



Torque Option 47

Pistol Grip Fastening Solutions With Torque Control

TCHDA 19TTA09Q

TCHDA 19TTA09Q	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					

*DBS if back drive socket



470 RPM
1.9 ~ 6.2 Nm

Torque Option			
Code	Speed	Max Torque	Offset Distance
62	470	6.2 Nm (4.6lbf-ft)	25.8 mm (1.0")

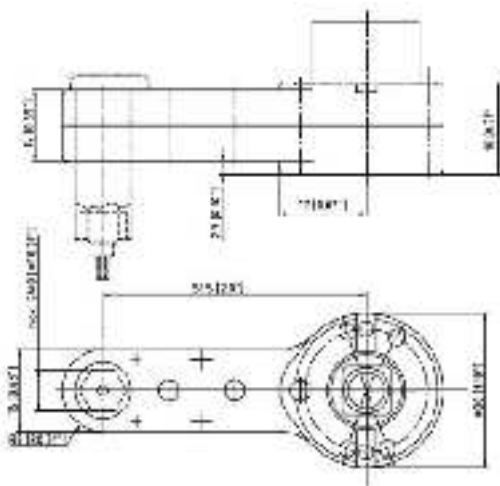
Shaft Length	
Code	Length
L127I	127 mm*
L65I	65 mm*

*with indexing

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 62



Pistol Grip Fastening Solutions With Torque Control

TCHDA 19TTA15Q

TCHDA 19TTA15Q	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



260 RPM
4.0 ~ 9.5 Nm

*DBS if back drive socket

Torque Option			
Code	Speed	Max Torque	Offset Distance
95	260	9.5 Nm (7.0 lbf-ft)	25.8 mm (1.0")

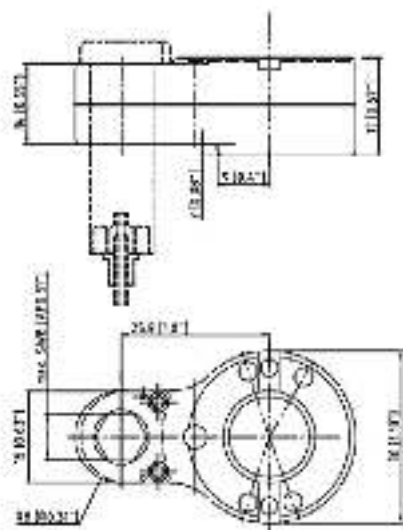
Shaft Length	
Code	Length
L127I	127 mm*
L65I	65 mm*

*with indexing

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Socket length		
Code	mm	inch
1	19	0.75
2	25	0.98
3	50	1.97



Torque Option 95

Pistol Grip Fastening Solutions With Torque Control

FCA 88RSATP-2CQ

FCA 88RSATP-2CQ	XXX	LXXXI	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



200 RPM
1.0 ~ 16.0 Nm

*DBS if back drive socket

Torque Option			
Code	Speed	Max Torque	Offset Distance
119	200	12.0 Nm (8.9 lfb-ft)	98.4 mm (8.9")
138	200	13.8 Nm (10.2 lfb-ft)	65.6 mm (2.6")
159	200	16.0 Nm (11.8 lfb-ft)	32.8 mm (1.3")

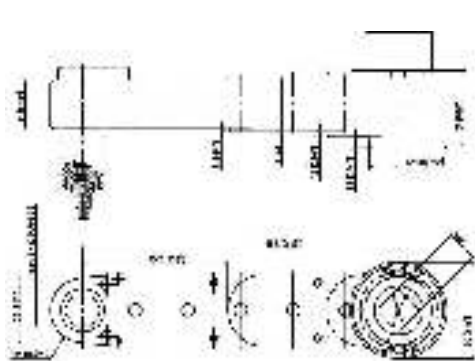
Shaft Length	
Code	Length
L127I	127 mm*
L65I	65 mm*

* with indexing

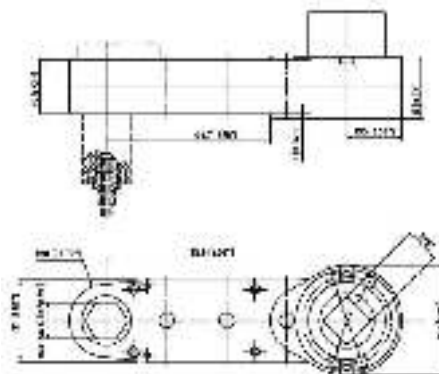
Socket Dimensions		
Code	mm	inch
H	7.14	9/32
I	7.94	5/16
K	8.73	11/32
L	9.53	3/8
N	11.00	13/30
O	11.11	7/16
Q	13.00	22/43

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8

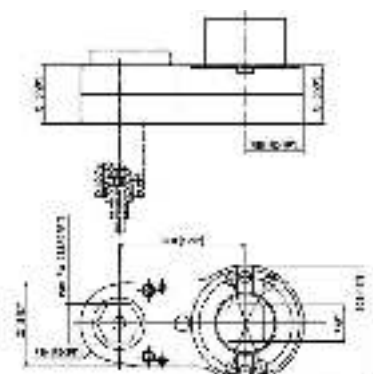
Socket length	
Code	mm
1	19
2	25
3	50



Torque Option 119



Torque Option 138



Torque Option 159

Angle Head Fastening Solutions (90° & 110°) With Torque Control

TCHDA 19RAA09AH2

TCHDA 19RAA05AM2	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Angle					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



627 RPM
1.9 ~ 4.6 Nm

*DBS if back drive socket

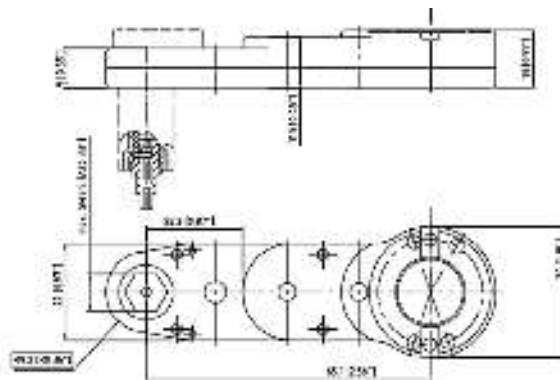
Torque Option		
Code	Max Torque	Offset Distance
45	4.6 Nm (3.4 lbf-ft)	65.1 mm (2.6")

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 45

Angle Head Fastening Solutions (90° & 110°) With Torque Control

TCHDA 19RAA05AM2

TCHDA 19RAA05AM2	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Angle					
Socket & Bit dimensions					
Socket Length					
Socket direction*					

*DBS if back drive socket



633 RPM
0.9 ~ 2.8 Nm

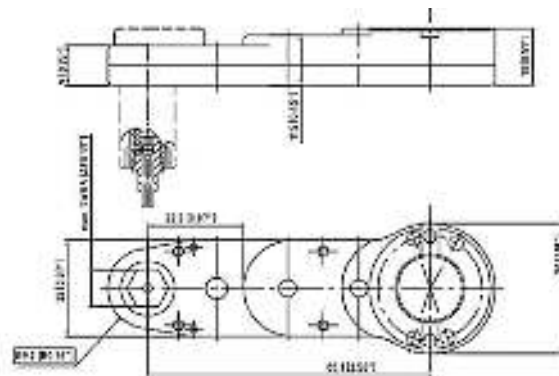
Torque Option		
Code	Max Torque	Offset Distance
28	2.8 Nm (2.1 lbf-ft)	65.1 mm (2.6")

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 28

Angle Head Fastening Solutions (90° & 110°) With Torque Control

TCHDA 19RAA11AH3

TCHDA 19RAA11AH3	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					

*DBS if back drive socket



426 RPM
1.9 ~ 6.1 Nm

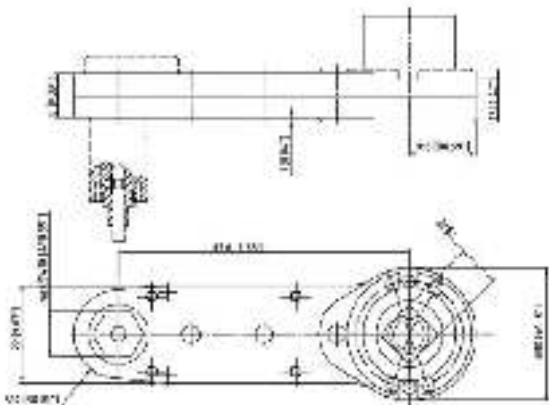
Torque Option		
Code	Max Torque	Offset Distance
60	6.1 Nm (4.5 lbf-ft)	65.1 mm (2.6")

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 60

Angle Head Fastening Solutions (90° & 110°) With Torque Control

TCHDA 19RAA09AH3

TCHDA 19RAA09AH3	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					

*DBS if back drive socket



267 RPM
2.0 ~ 7.3 Nm

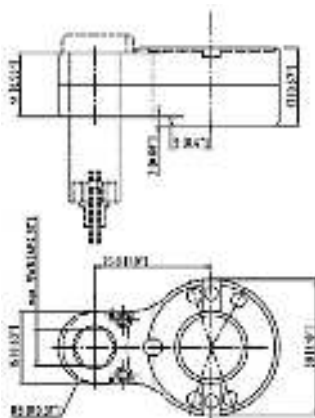
Torque Option		
Code	Max Torque	Offset Distance
64	6.4 Nm (4.7 lfb-ft)	65.1 mm (2.6")
72	7.3 Nm(5.4 lfb-ft)	

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64

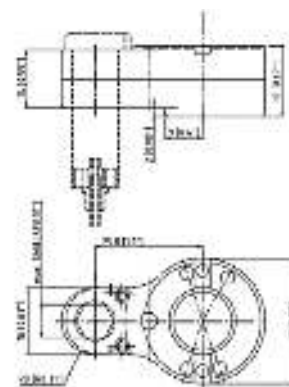
Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 64



Torque Option 72

Angle Head Fastening Solutions (90° & 110°) With Torque Control

TCHDA 24RAA23AM3

TCHDA 24RAA23AM3	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



840 RPM
6.4 ~ 14.3 Nm

*DBS if back drive socket

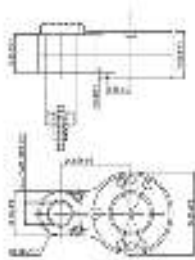
Torque Option		
Code	Max Torque	Offset Distance
95	9.5 Nm (7.0 lbf-ft)	25.8 mm (1.0")
110	11.0 Nm (8.1 lbf-ft)	65.1 mm (2.6")
123	12.4 Nm (9.1 lbf-ft)	32.8 mm (1.3")
143	14.3 Nm (10.5 lbf-ft)	32.8 mm (1.3")

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

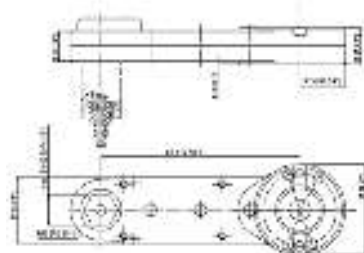
Socket Dimensions		
Code	mm	inch
D	5.56	7/32
F	6.35	1/4
H	7.14	9/32
I	7.94	5/16
K	8.73	11/32
L	9.53	3/8

Bit dimensions		
Code	mm	inch
2	1.59	1/16
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8

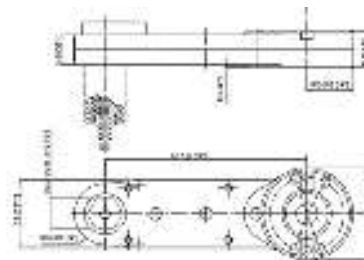
Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



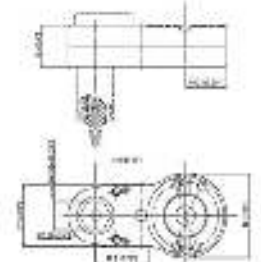
Torque Option 95



Torque Option 123



Torque Option 110



Torque Option 143

Angle Head Fastening Solutions (90° & 110°) With Torque Control

TCHDA 34RAA47AH4

TCHDA 34RAA47AH4	XX	RXXX	XX	X	XXX
Motor designation					
Torque Options					
Shaft Length					
Socket & Bit dimensions					
Socket Length					
Socket direction*					



539 RPM
13.0 ~ 25.6 Nm

*DBS if back drive socket

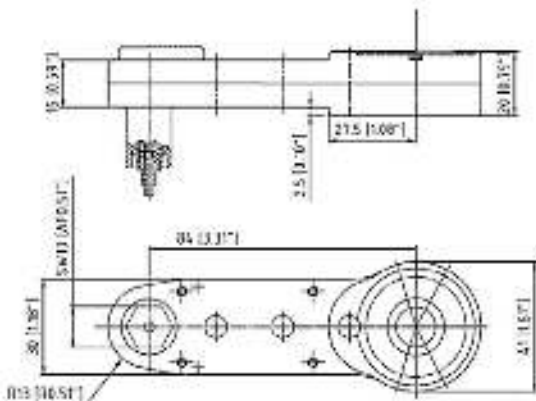
Torque Option		
Code	Max Torque	Offset Distance
255	25.6 Nm (18.9 lbf-ft)	84.0 mm (3.3")

Bit dimensions		
Code	mm	inch
3	1.98	5/64
5	2.38	3/32
7	3.18	1/8
8	3.97	5/32

Angle		
Code	Angle	Indexing 360°
R90I	90°	Yes
R90	90°	No
R110I	110°	Yes
R110	110°	No

Socket Dimensions		
Code	mm	inch
L	9.53	3/8
O	11.11	7/16
P	12.70	1/2

Socket length		
Code	mm	inch
1	29	1.14
2	25	0.98
3	50	1.97



Torque Option 255



Apex Sockets and Bits



Apex Bits

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.



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.

ADVANTAGES AND PRECISIONS

■ 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

Apex Bit Specifications and Extensions



For all these fastening types:

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

Insert Bits (1/4" Hex) - metric

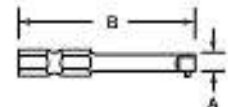
For internal hexagon and adjusting screws



Part Number	Size mm	Overall Length mm
185-1,5 mm	1,5 mm	25
185-2 mm	2 mm	25
185-2,5 mm	2,5 mm	25
185-3 mm	3 mm	25
185-4 mm	4 mm	33
185-5 mm	5 mm	33
185-6 mm	6 mm	33
185-7 mm	7 mm	32
185-8 mm	8 mm	32
185-9 mm	9 mm	32
185-10 mm	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" mm	Sleeve Number
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	Tige	76
EX-501-4	7/16	Tige	102
EX-501-6	7/16	Tige	152
Hex drive with 3/8" male square drive			
EX-371-3	7/16	Tige	76
EX-371-4	7/16	Tige	102
EX-371-6	7/16	Tige	152

Hex Power Drive



Part Number	Part Number Magnetic	Size mm	Overall Length mm	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.



Apex Bits

Phillips Bits

1/4" Hex Insert Bits



1/4" Hex

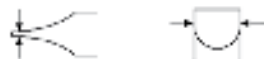


Part Number	Size	Overall Length		
		inch	mm	
440-1X	1	1	25	
440-115X	1	1 1/2	38	
440-12X	1	2	51	
440-125X	1	2 1/2	64	
440-13X	1	3	76	
440-2X	2	1	25	
440-2I	2	1	25	
440-215X	2	1 1/2	38	
440-22X	2	2	51	
440-225X	2	2 1/2	64	
440-23X	2	3	76	
440-24X	2	4	101	
440-255X	2	5 1/2	140	
440-26X	2	6	152	
440-27X*	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	

Part Number	Size	Total 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

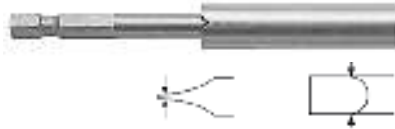
1/4" Hex Insert Bits



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

Apex Guide Sleeves and Bits

Slotted Power Bits with Guide Sleeves



1/4" Hex Power Drive

Part No. Complete Assembly	Part Number Only Bit	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	.0421	.07	.290	7,37
R-320X	320-RX	10F-12R	3 3/4	95	.0461	.17	.350	8,89
S-320X	320-SX	12F-14R	3 7/8	98	.0501	.27	.395	10,03
T-320X	320-TX	14F-16R	4 1/8	105	.0551	.40	.457	11,61

Triple Square Bits



1/4" Hex Power Drive

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

Tri-Wing®



1/4" Hex Insert Bits

Part Number	Size	Size Tension Head	Size Shear Head	Total Length	
				inch	mm
T-WD-0	0	0-80	-	1	25
T-WD-1	1	2-56	4-40	1	25
T-WD-2	2	4-40	6-32	1	25
T-WD-3	3	6-32	8-32	1	25
T-WD-4	4	8-32	10-32	1	25
T-WD-5	5	10-32	1/4-28	1	25
T-WD-6	6	1/4	5/16	1	25
T-WD-7	7	5/16	3/8	1	25

Torx® Bits



1/4" Hex Power Drive

Part No. Complete Assembly	Size Screwdriver	A	Shank Diameter		Total 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.



Apex μ -Guard Product Protection Solutions

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

- Apex μ -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 μ -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 μ -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 μ -Guard™ is your protection against damage due to friction caused by rotation.



Prevents Damage due to Side Impacts



Free Spinning Design



Practically Damage-Free



Apex μ -Guard™ – product protection.

Apex μ -Guard™ Specifications

μ -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



μ -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	A	FS
UG-EX-250-4	EX-250-4	1/4	Hex	M	4	1/4	Square	A	FS
UG-EX-250-6	EX-250-6	1/4	Hex	M	6	1/4	Square	A	FS
UG-EX-370-2	EX-370-2	1/4	Hex	M	2	3/8	Square	A	FS
UG-EX-370-4	EX-370-4	1/4	Hex	M	4	3/8	Square	A	FS
UG-EX-370-6	EX-370-6	1/4	Hex	M	6	3/8	Square	A	FS
UG-EX-376-3	EX-376-3	3/8	Square	F	3	3/8	Square	A	FS
UG-EX-376-6	EX-376-6	3/8	Square	F	6	3/8	Square	A	FS
UG-EX-376-12	EX-376-12	3/8	Square	F	12	3/8	Square	A	FS
UG-EX-508-4	EX-508-4	1/2	Square	F	4	1/2	Square	A	FS
UG-EX-508-8	EX-508-8	1/2	Square	F	8	1/2	Square	A	FS
UG-EX-508-12	EX-508-12	1/2	Square	F	12	1/2	Square	A	FS



μ -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. 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 inch	Female Square inch	Type of Locking	Largest Diameter mm
KAM-37-3*	KDM-37-3*	3/8	3/8	Tige	19
---	KDM-37-6*	3/8	3/8	Tige	19
---	KDM-37-B-3	3/8	3/8	Bille	19
KAM-38-6*	KDM-38-6*	3/8	3/8	Tige	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



Tension type

Standard

Part Number Standard	Part Number Tension Type	Across Flats Width mm	Shank Length A	Socket Length B	Diam. Socket C	Diam. Socket End D	Across Flats Depth E
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 mm	Overall Length A	Diameter Socket End B	Diameter Drive End C	Across Flats Depth D
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 mm	Overall Length A	Diameter Socket End B	Diameter Drive End C	Across Flats Depth D
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



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

Part Number Hex	Part N° Double Square	Across Flats Width mm	Overall Length	Diameter Socket End	Diameter Drive End	Across Flats Depth
			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 N° Double Hex	Across Flats Width Inch	Overall Length	Diameter Socket End	Diameter Drive End	Across Flats Depth
			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



Index

Chapter A

Model	Page	Model	Page	Model	Page
10000010	8	10015200W	14	10040555	30
1000010W	8	10015200	14	10040650	30
10000100	8	10015001W	14	10040720	30
10000100W	8	10015001	14	10040730	30
10005000W	10	10015016W	14	10040740	30
10005000	10	10015016	14	10040750	30
10005200W	10	10015021W	14	10040760	30
10005200	10	10015021	14	10045000PT	32
10005305W	10	10015500PT	16	10045200W	32
10005305	10	10015500	16	10045210W	32
10005001W	10	10015500W	16	10045405W	32
10005001	10	10015550W	16	10045505W	32
10005306W	10	RC-10025010W	18	10045600W	32
10005306	10	RC-10025015W	18	10045050	32
10005050W	10	10025105W	18	10045250W	32
10005050	10	10025110W	18	10045260W	32
10005250W	10	10025001W	18	10045455W	32
10005250	10	10025016W	18	10045555W	32
10005355W	10	10025111W	18	10045650W	32
10005355	10	10025116W	18	10045700PT	32
10005051W	10	10025117W	18	10045720W	32
10005051	10	10040000PT	28	10045730W	32
10005356W	10	10040200W	28	10045740W	32
10005356	10	10040210W	28	10045750W	32
10010010W	12	10040405W	28	10045760W	32
10010010	12	10040505W	28	10045200PT	34
10010015W	12	10040600W	28	10045210	34
10010015	12	10040050	28	10045405	34
10010001W	12	10040250W	28	10045505	34
10010001	12	10040260W	28	10045600PT	34
10010016W	12	10040455W	28	10045250	34
10010016	12	10040555W	28	10045260	34
10010205W	12	10040650W	28	10045455	34
10010205	12	10040700PT	28	10045555	34
10010110W	12	10040720W	28	10045650	34
10010110	12	10040730W	28	10045720	34
10010115W	12	10040740W	28	10045730	34
10010115	12	10040750W	28	10045740	34
10010111W	12	10040760W	28	10045750	34
10010011	12	10040200PT	30	10045760	34
10010116W	12	10040210	30	10050000W	36
10010116	12	10040405	30	10050000	36
10015010W	14	10040505	30	10050050W	36
10015010	14	10040600PT	30	10050050	36
10015015W	14	10040250	30	10080005	40
10015015	14	10040260	30	10080010	40
RC-10015020W	14	10040455	30	10080015	40

Chapter C

Model	Page	Model	Page			
10080020	40	30220001	57	30320315	59	
Chapter B						
Serie A1		43	30220101	57	30322015	59
20932/20952	44	30220301	57	30322025	59	
20942/20962	45	30222001	57	30322030	59	
21500	46	30223001	57	30322040	59	
21502	47	30224001	57	30322050	59	
Chapter C						
31206000	54	30500311	58	30322055	59	
31206005	54	30500055	58	30323035	59	
31206010	54	30500060	58	30323040	59	
31206015	54	30500065	58	30324045	59	
31206020	54	30500070	58	30324050	59	
31206025	54	30503060	58	30320000	59	
31206030	54	30500075	58	30320100	59	
31206035	54	30503166	58	30320300	59	
31206040	54	30500105	58	30322000	59	
31206045	54	30500110	58	30323000	59	
31206100	54	30502160	58	30324000	59	
31206105	54	30500115	58	30600010	60	
31206110	54	30500125	58	30600015	60	
31206120	54	30500130	58	30600020	60	
31206125	54	30500203	58	30600025	60	
31206200	54	30500205	58	30600030	60	
31206300	54	30500210	58	30600110	60	
31206305	54	30500215	58	30600115	60	
30220005	57	30500220	58	30600120	60	
30220010	57	30500225	58	30600125	60	
30220015	57	30500300	58	30600001	60	
30220110	57	30500000	58	30600101	60	
30220115	57	30503060	58	30601001	61	
30220120	57	02500591PT	58	30601101	61	
30220215	57	02500592PT	58	31000000	62	
30220310	57	02500593PT	58	31000005	62	
30220315	57	02500586PT	58	31000010	62	
30222015	57	30503160	58	31000015PT	62	
30222025	57	30500100	58	31000020	62	
30222030	57	30503160	58	31000025	62	
30222040	57	30500200	58	31000100PT	62	
30222050	57	30503260	58	31000105	62	
30222055	57	30320005	59	31000110	62	
30223035	57	30320010	59	31000115	62	
30223040	57	30320015	59	31000200PT	62	
30224045	57	30320110	59	31000205	62	
30224050	57	30320115	59	31000210	62	
		30320120	59	31000300PT	62	
		30320215	59	31000305	62	
		30320310	59	31000310	62	
				31000315	62	

Chapter C

Model	Page	Model	Page	Model	Page	Model	Page	Model	Page	Model	Page
31000400PT	62	02506014PT	62	31100410	63	31400200	67	33000632	76	09000100PT	78
31000410	62	02506015PT	62	31100415	63	31400210	67	33001005	76	09000130PT	78
31000500PT	62	02506016PT	62	31100420	63	31400300	67	33001010	76	09000190PT	78
31000505	62	02506017PT	62	31100425	63	32800100	69	33001015	76	09000220PT	78
31000510	62	02506018PT	62	31100430	63	32800200	69	33001020	76	09000340PT	78
31000520	62	02506019PT	62	31100440	63	32800205	69	32110067	77	09000400PT	78
31000600PT	62	02506020PT	62	31100444	63	32800260	69	32110102	77	09000105PT	78
31001002	62	02506021PT	62	31100446	63	32802100	69	32110069	77	09000135PT	78
31001007	62	31100000	63	31100445	63	32802200	69	32110070	77	09000195PT	78
31001012	62	31100005	63	31100460	63	32802205	69	32110071	77	09000225PT	78
31001017	62	31100006	63	31100478	63	32802260	69	32110065	77	09000345PT	78
31001022	62	31100009	63	31100455	63	32820010	72	32110078	77	09000405PT	78
31001030	62	31100010	63	31100515	63	32820110	72	32110103	77	09000110PT	78
31001101	62	31100020	63	31100520	63	02110004PT	72	32110097	77	09000140PT	78
31001106	62	31100025	63	31100586	63	32600000	73	32110072	77	09000200PT	78
31001111	62	31100024	63	31500035	64	32600050	73	32110073	77	09000230PT	78
31001120	62	31100030	63	31500065	64	32600100	73	32110055	77	09000350PT	78
31001201	62	31100035	63	31500095	64	32600005	73	32110074	77	09000410PT	78
31001206	62	31100056	63	31601000	64	32600055	73	32110079	77	09000025PT	78
31001215	62	31100100	63	31601025	64	32600105	73	32110060	77	09000055PT	78
31001301	62	31100105	63	31700000	65	33503108	75	32110057	77	09000085PT	78
31001306	62	31100110	63	31700005	65	33504104	75	32110056	77	09000115PT	78
31001311	62	31100115	63	31700200	65	33506100	75	32110063	77	09000145PT	78
31001320	62	31100114	63	31700210	65	33500104	75	32110064	77	09000205PT	78
31001401	62	31100120	63	31700300	65	33500206	75	32110082	77	09000235PT	78
31001413	62	31100122	63	31700310	65	33504204	75	32110081	77	09000355PT	78
31001501	62	31100130	63	31700315	65	33503228	75	32110080	77	09000415PT	78
31001506	62	31100131	63	31700325	65	33504224	75	32110068	77	09001120PT	78
31001511	62	31100138	63	31300000	66	33500306	75	32110059	77	09001180PT	78
31001521	62	03590513PT	63	31300025	66	33504304	75	32110075	77	09001210PT	78
31001610	62	31100142	63	31302035	66	33500301	75	32110076	77	09001330PT	78
31001103	62	31100145	63	31300050	66	33500305	75	32110119	77	09001420PT	78
31001108	62	31100133	63	31302060	66	33500404	75	32110098	77	09001095PT	78
31001113	62	31100135	63	31300125	66	33500504	75	32110058	77	09001125PT	78
31001130	62	03590436PT	63	31302135	66	33500536	75	32110062	77	09001185PT	78
31001203	62	31100177	63	31300150	66	33500904PT	75	32110077	77	09001215PT	78
31001208	62	31100200	63	31302160	66	33504105	75	32110066	77	09001335PT	78
31001225	62	31100205	63	31300200	66	33500187	75	32110083	77	09001395PT	78
31001303	62	31100206	63	31302210	66	33500207	75	32110061	77	09001010PT	78
31001308	62	31100210	63	31300250	66	33504205	75	09000120PT	78	09001040PT	78
31001313	62	31100220	63	31300300	66	33500537	75	09000180PT	78	09001070PT	78
31001330	62	31100236	63	03596083PT	67	33500627	75	09000210PT	78	09001100PT	78
31001404	62	31100225	63	31400000	67	33500657	75	09000330PT	78	09001130PT	78
31001420	62	31100250	63	31400004	67	33501707	75	09000095PT	78	09001190PT	78
31001503	62	31100230	63	31400005	67	33000132	76	09000125PT	78	09001220PT	78
31001508	62	31100300	63	31400015	67	33000020	76	09000185PT	78	09001340PT	78
31001513	62	31100305	63	31400020	67	33000025	76	09000215PT	78	09001400PT	78
31001523	62	31100310	63	31400100	67	33000030	76	09000335PT	78	09001105PT	78
31001620	62	31100315	63	31400105	67	33000040	76	09000395PT	78	09001135PT	78
02506010PT	62	31100320	63	31400110	67	33000240	76	09000010PT	78	09001195PT	78
02506012PT	62	31100400	63	31400115	67	33000248	76	09000040PT	78	09001225PT	78
02506013PT	62	31100405	63	31400125	67	33000625	76	09000070PT	78	09001345PT	78

Chapter C

Model	Page	Model	Page	Model	Page	Model	Page	Model	Page	Model	Page
09001405PT	78	09002235PT	79	09004410PT	80	09006415PT	81	09010210PT	83	09012335PT	84
09001110PT	78	09002335PT	79	09004025PT	80	09007275PT	81	09010330PT	83	09012395PT	84
09001140PT	78	09002415PT	79	09004085PT	80	09007395PT	81	09010420PT	83	09012010PT	84
09001200PT	78	09003125PT	79	09004145PT	80	09007040PT	81	09010480PT	83	09012130PT	84
09001230PT	78	09003215PT	79	09004235PT	80	09007280PT	81	09010095PT	83	09012220PT	84
09001350PT	78	09003275PT	79	09004355PT	80	09007400PT	81	09010125PT	83	09012340PT	84
09001410PT	78	09003335PT	79	09004415PT	80	09007285PT	81	09010185PT	83	09012400PT	84
09001025PT	78	09003395PT	79	09005125PT	80	09007405PT	81	09010215PT	83		
09001055PT	78	09003010PT	79	09005215PT	80	09007290PT	81	09010335PT	83	Chapter E	
09001085PT	78	09003070PT	79	09005335PT	80	09007410PT	81	09010395PT	83	60901000	94
09001115PT	78	09003130PT	79	09005010PT	80	09007055PT	81	09010455PT	83	60003000	94
09001145PT	78	09003220PT	79	09005070PT	80	09007295PT	81	09010010PT	83	60002005	95
09001205PT	78	09003280PT	79	09005130PT	80	09007415PT	81	09010070PT	83	60001000	96
09001235PT	78	09003340PT	79	09005220PT	80	09008125PT	82	09010100PT	83	RC-60001005	96
09001355PT	78	09003400PT	79	09005340PT	80	09008185PT	82	09010130PT	83	60004000	97
09001415PT	78	09003225PT	79	09005135PT	80	09008215PT	82	09010190PT	83	60004017	97
09002120PT	79	09003285PT	79	09005225PT	80	09008335PT	82	09010220PT	83	60004001	97
09002180PT	79	09003345PT	79	09005345PT	80	09008395PT	82	09010340PT	83	60004005	97
09002210PT	79	09003405PT	79	09005140PT	80	09008010PT	82	09010400PT	83	60004008	97
09002330PT	79	09003140PT	79	09005230PT	80	09008130PT	82	09010460PT	83	60004010	97
09002420PT	79	09003230PT	79	09005350PT	80	09008190PT	82	09010195PT	83	60004016	97
09002095PT	79	09003290PT	79	09005025PT	80	09008220PT	82	09010225PT	83	60004015	97
09002125PT	79	09003350PT	79	09005085PT	80	09008340PT	82	09010345PT	83	90510005	97
09002185PT	79	09003410PT	79	09005145PT	80	09008400PT	82	09010405PT	83	90510010	97
09002215PT	79	09003025PT	79	09005235PT	80	09008135PT	82	09010465PT	83	90510015	97
09002335PT	79	09003085PT	79	09005355PT	80	09008195PT	82	09010110PT	83	90520010	97
09002395PT	79	09003145PT	79	09006210PT	81	09008225PT	82	09010140PT	83	91217225	97
09002010PT	79	09003235PT	79	09006330PT	81	09008345PT	82	09010200PT	83	93430075	97
09002070PT	79	09003295PT	79	09006420PT	81	09008405PT	82	09010230PT	83	90520005	97
09002100PT	79	09003355PT	79	09006125PT	81	09008140PT	82	09010350PT	83	90030005	97
09002130PT	79	09003415PT	79	09006215PT	81	09008200PT	82	09010410PT	83	93060010	97
09002190PT	79	09004120PT	80	09006335PT	81	09008230PT	82	09010470PT	83	93060005	97
09002220PT	79	09004210PT	80	09006395PT	81	09008350PT	82	09010025PT	83	60004501	97
09002340PT	79	09004330PT	80	09006010PT	81	09008410PT	82	09010085PT	83	60101010	98
09002400PT	79	09004420PT	80	09006070PT	81	09008025PT	82	09010115PT	83	60101110	98
09002105PT	79	09004125PT	80	09006130PT	81	09008145PT	82	09010145PT	83	60104010	102
09002135PT	79	09004215PT	80	09006220PT	81	09008205PT	82	09010205PT	83	60104110	102
09002195PT	79	09004335PT	80	09006340PT	81	09008235PT	82	09010235PT	83	60110011PT	104
09002225PT	79	09004395PT	80	09006400PT	81	09008355PT	82	09010355PT	83	60102010	106
09002345PT	79	09004010PT	80	09006135PT	81	09008415PT	82	09010415PT	83	60102110	106
09002405PT	79	09004070PT	80	09006225PT	81	09009335PT	82	09010475PT	83	60103010	108
09002110PT	79	09004130PT	80	09006345PT	81	09009395PT	82	09011125PT	83	60103110	108
09002140PT	79	09004220PT	80	09006405PT	81	09009345PT	82	09011215PT	83	60203006	112
09002200PT	79	09004340PT	80	09006140PT	81	09009405PT	82	09011335PT	83	60203106	112
09002230PT	79	09004400PT	80	09006230PT	81	09009355PT	82	09011395PT	83	60203016	112
09002350PT	79	09004135PT	80	09006350PT	81	09009415PT	82	09011010PT	83	60203116	112
09002410PT	79	09004225PT	80	09006410PT	81	09009340PT	82	09011130PT	83	60300006	116
09002025PT	79	09004345PT	80	09006025PT	81	09009400PT	82	09011220PT	83	60300011	116
09002085PT	79	09004405PT	80	09006085PT	81	09009350PT	82	09011340PT	83	40150520	117
09002115PT	79	09004140PT	80	09006145PT	81	09009410PT	82	09011400PT	83	40150530	117
09002145PT	79	09004230PT	80	09006235PT	81	09010120PT	83	09012125PT	84	60300520	117
09002205PT	79	09004350PT	80	09006355PT	81	09010180PT	83	09012215PT	84	60300530	117

Chapter E

Model	Page	Model	Page	Model	Page
60202005	118	60713475	120	60723575	120
60202010	118	60713495	120	60723595	120
60703005	120	60713505	120	60723605	120
60703020	120	60713520	120	60723620	120
60703040	120	60713540	120	60723640	120
60703055	120	60713555	120	60723655	120
60703075	120	60713575	120	60723675	120
60703095	120	60713595	120	60723695	120
60703205	120	60713605	120	60751000	121
60703220	120	60713620	120	60751050	121
60703240	120	60713640	120	60751100	121
60703255	120	60713655	120	60751150	121
60703275	120	60713675	120	60751200	121
60703295	120	60713695	120	60751250	121
60703405	120	60713705	120	03910638PT	122
60703420	120	60713720	120	03911800PT	122
60703440	120	60713740	120	03911374PT	122
60703455	120	60713755	120	03910900PT	122
60703475	120	60713775	120	03911809PT	122
60703495	120	60713795	120	03911810PT	122
60703505	120	60711105	120	60771150	122
60703520	120	60711120	120	60771155	122
60703540	120	60711205	120	60771160	122
60703555	120	60711220	120	03911360PT	122
60703575	120	60723105	120	03911361PT	122
60703595	120	60723120	120	03910226PT	123
60703605	120	60723140	120	03910227PT	123
60703620	120	60723155	120	03912760PT	123
60703640	112	60723175	120	03912761PT	123
60703655	112	60723195	120	03912762PT	123
60703675	112	60723205	120	03910228PT	123
60703695	112	60723220	120	03912769PT	123
60701005	112	60723240	120	60802241	123
60701020	112	60723255	120	60802242	123
60701205	112	60723275	120	60802143	123
60701220	112	60723295	120	60802243	123
60713105	112	60723305	112	60802343	123
60713120	112	60723320	112	60802144	123
60713140	112	60723340	112	60802244	123
60713155	112	60723355	112	60802344	123
60713175	112	60723375	112	60802311	123
60713195	112	60723395	112	60803316	123
60713205	112	60723405	112		
60713220	112	60723420	112		
60713240	112	60723440	112		
60713255	112	60723455	112		
60713275	120	60723475	120		
60713295	120	60723495	120		
60713405	120	60723505	120		
60713420	120	60723520	120		
60713440	120	60723540	120		
60713455	120	60723555	120		

Chapter F

Model	Page	Model	Page	Model	Page
14CFS97	129	1005681	136	1005926	139
14CFS96	129	1025477	137	1005682	139
14CFS95	129	1025476	137	1005876	139
14CFS94	129	1025668	137	1006035	139
14CFS93	129	1021289	137	1005187	139
14CFS92	129	1021292	137	1005977	139
14CFS91	129	1021291	137	1005927	139
14CFS90	129	1021780	137	1005188	139
14CSL97	129	1025730	137	1005871	139
14CSL95	129	1025731	137	1006001	139
14CSL92	129	1025733	137	1005681	139
14CSL91	129	1025696	137	1005078	139
14CSL98	129	1021620	137	1001505	139
14CSL90	129	15LF281Q	138	1001252	139
14CNL97	130	15LF282Q	138	1009726	139
14CNL95	130	15LF283Q	138	33633	139
14CNL92	130	15LF284Q	138	33663D	139
14CNL91	130	15LF285Q	138	70100012	143
14CNL98	130	15LF286Q	138	70100031	143
14CNL90	130	15LF287Q	138	70110200	144
14CHL92	130	15LN281Q	138	70110250	144
14CHL98	130	15LN282Q	138	70110300	144
15DP-1.6B	131	15LN283Q	138	70110350	144
15DP-4B	131	15LN284Q	138	70110400	144
15DB-8B	131	15LN285Q	138	70110480	144
135DPV-7B	131	15LN286Q	138	70110500	144
135DPV-4B	131	15LN287Q	138	70110550	144
135DPV-14B	131	302206PT-Q42	138	70110600	144
15LF087	132	302206PT-Q43	138	70110635	144
15LF086	132	302206PT-Q52	138	70110794	144
15LF055	132	302206PT-Q53	138	70110952	144
15LF085	132	302206PT-Q59	138	70300005	145
15LF054	132	302206PT-Q62	138	70300010	145
15LF084	132	302206PT-Q63	138	70310324	146
15LF053	132	302206PT-Q72	138	70311135	146
15LF083	132	302206PT-Q73	138	50001024PT	147
15LF052	132	302206PT-Q92	138	50001032PT	147
15LF082	132	302206PT-Q93	138	50001040PT	147
15LF051	132	1006408	139	50001048	147
15LF081	132	1005180	139	50002048	147
15LF080	132	1006412	139	50002224PT	147
15L1487	133	1005875	139	50002232PT	147
15L1488	133	1005182	139	50002240PT	147
15L1489	133	1005684	139	50002248	147
15L1470	133	1006395	139	50100005	147
15L1401	133	1005183	139		
15L1471	133	1005873	139		
15LF287	133	1005184	139		
15LF286	133	1013904	139		
15LF285	133	1005185	139		
15LF284	133	1005872	139		
15LF283	133	1005186	139		

Chapter G

Model	Page
FCA 19PTA09Q	150
FCA 19PTA15Q	151
FCA 88RSATP-2CQ	152
FCA 19RAA11AH3	153
FCA 19RAA12AH3	154
FCA 24RAA23AM	155
FCA 34RAA47AH4	156
TCHDA 19TTA04Q	157
TCHDA 19TTA07Q	158
TCHDA 19TTA09Q	159
TCHDA 19TTA15Q	160
"FCA 88RSATP-2CQ (Double ligne 5)"	161
TCHDA 19RAA11AH3	164
TCHDA 19RAA09AH3	165
TCHDA 24RAA23AM3	166
TCHDA 34RAA47AH4	168

Chapter H

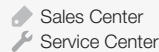
Model	Page	Model	Page	Model	Page	Model	Page	Model	Page	Model	Page
185-1,5 mm	171	440-3BNX	172	L-320X	173	49-A-TX-25	173	UG-QR-308	175		
185-2 mm	171	440-32X	172	M-320X	173	49-B-TX-25	173	UG-QR-508	175		
185-2,5 mm	171	440-325X	172	P320X	173	49-C-TX-25	173	UG-QR-314	175		
185-3 mm	171	440-33X	172	R-320X	173	49-TX-27	173	UG-QR-514	175		
185-4 mm	171	440-34X	172	S-320X	173	49-A-TX-27	173	KAM-37-3	177		
185-5 mm	171	440-4X	172	T-320X	173	49-B-TX-27	173	KAM-38-6	177		
185-6 mm	171	4910X	172	49-TSQ-4M	173	49-C-TX-27	173	KDM-37-3	177		
185-7 mm	171	4910-AX	172	49-TSQ-5M	173	49-TX-30	173	KDM-37-6	177		
185-8 mm	171	4910-BX	172	49-TSQ-6M	173	49-A-TX-30	173	KDM-37-B-3	177		
185-9 mm	171	4910-CX	172	49-TSQ-8M	173	49-B-TX-30	173	KDM-38-6	177		
185-10 mm	171	491X	172	49-TSQ-10M	173	49-C-TX-30	173	M-8mm43	177		
EX250-2	171	491-AX	172	49-TSQ-12M	173	49-TX-40	173	M-10mm43	177		
EX250-3	171	491-BX	172	T-WD-0	173	49-A-TX-40	173	M-11mm43	177		
EX250-4	171	491-CX	172	T-WD-1	173	49-B-TX-40	173	M-12mm43	177		
EX250-6	171	491-CCX	172	T-WD-2	173	49-C-TX-40	173	M-13mm43	177		
EX370	171	492X	172	T-WD-3	173	UG-10MM21	175	M-14mm43	177		
EX370-3	171	492I	172	T-WD-4	173	UG-M-10MM21	175	M-15mm43	177		
EX500-2	171	492-AX	172	T-WD-5	173	UG-MB-10MM21	175	KA-6-10m-4	177		
EX500-3	171	492-AI	172	T-WD-6	173	UG-10MM13	175	KA-6-10m-6	177		
EX-501-3	171	492-BX	172	T-WD-7	173	UG-M-10MM13	175	KA-6-10m-9	177		
EX-501-4	171	492-BI	172	49-TX-05	173	UG-10MM23	175	KA-7-11m-12	177		
EX-501-6	171	492-CX	172	49-A-TX-05	173	UG-M-10MM23	175	KA-7-12m-4	177		
EX-371-3	171	492-CI	172	49-B-TX-05	173	UG-MB-10MM23	175	KA-7-12m-6	177		
EX-371-4	171	492-200MM	172	49-TX-06	173	UG-13MM23	175	KA-7-12m-9	177		
EX-371-6	171	SD-2052-8	172	49-A-TX-06	173	UG-M-13MM23	175	KA-7-12m-12	177		
6N-08-8M-3	171	SD-2052-10	172	49-TX-07	173	UG-MB-13MM23	175	KA-7-13m-3	177		
6N-08-8M-4	171	492-CCX	172	49-A-TX-07	173	UG-13MM25	175	KA-7-13m-4	177		
6N-08-8M-6	171	492-27X	172	49-B-TX-07	173	UG-SF-13MM25	175	KA-7-13m-6	177		
6N-08-10M-3	171	492-A-27X	172	49-C-TX-07	173	UG-15MM25	175	KA-7-13m-9	177		
6N-08-10M-4	171	492-B-27X	172	49-TX-08	173	UG-SF-15MM25	175	KA-7-13m-12	177		
6N-08-10M-6	171	492-C-27X	172	49-A-TX-08	173	UG-18MM25	175	KA-7-14m-6	177		
6N-08-12M-3	171	492-CC-27X	172	49-B-TX-08	173	UG-SF-18MM25	175	KA-8-15m-3	177		
6N-08-12M-4	171	493X	172	49-C-TX-08	173	UG-EX-250-2	175	KA-8-15m-9	177		
6N-08-12M-6	171	493-AX	172	49-TX-09	173	UG-EX-250-4	175	KA-8-15m-12	177		
440-1X	172	493-BX	172	49-A-TX-09	173	UG-EX-250-6	175	KD-6-10m-6	177		
440-115X	172	493-CX	172	49-B-TX-09	173	UG-EX-370-2	175	KD-6-10m-9	177		
440-12X	172	4930X	172	49-C-TX-09	173	UG-EX-370-4	175	KD-6-10m-12	177		
440-125X	172	4930-AX	172	49-TX-10	173	UG-EX-370-6	175	KD-7-11m-6	177		
440-13X	172	4930-BX	172	49-A-TX-10	173	UG-EX-376-3	175	KD-7-11m-12	177		
440-2X	172	4930-CX	172	SD-4693	173	UG-EX-376-6	175	KD-7-12m-6	177		
440-2I	172	4930-CCX	172	49-B-TX-10	173	UG-EX-376-12	175	KD-7-12m-9	177		
440-215X	172	494X	172	49-C-TX-10	173	UG-EX-508-4	175	KD-7-12m-12	177		
440-22X	172	445-1X	172	49-TX-15	173	UG-EX-508-8	175	KD-7-13m-6	177		
440-225X	172	445-2X	172	49-A-TX-15	173	UG-EX-508-12	175	KD-7-13m-9	177		
440-23X	172	445-3X	172	49-B-TX-15	173	UG-M-490	175	KD-7-13m-12	177		
440-24X	172	445-4X	172	49-C-TX-15	173	UG-M-490-2	175	KD-7-14m-6	177		
440-255X	172	445-1-15X	172	49-TX-20	173	UG-838	175	KD-7-14m-9	177		
440-26X	172	445-2-15X	172	49-A-TX-20	173	UG-M-838	175	KD-8-15m-6	177		
440-27X	172	445-3-15X	172	49-B-TX-20	173	UG-835	175	KD-8-15m-9	177		
440-3X	172	445-4-15X	172	49-TX-20-5	173	UG-M-835	175	KD-8-15m-12	177		
440-3I	172	445-5X	172	49-C-TX-20	173	UG-855	175	17mm17	177		
440-3125X	172	445-6X	172	49-TX-25	173	UG-M-855	175	18mm17	177		

Chapter H

Model	Page
19mm17	177
20mm17	177
21mm17	177
22mm17	177
22mm47+	177
24mm17	177
24mm47+	177
26mm17	177
27mm17	177
27mm47+	177
29mm17	177
30mm17	177
30mm47+	177
32mm17	177
32mm47+	177
33mm17	177
36mm17	177
37mm17	177
41mm17	177
46mm17	177
10mm15	178
11mm15	178
12mm15	178
13mm15	178
14mm15	178
15mm15	178
16mm15	178
17mm15	178
18mm15	178
19mm15	178
20mm15	178
21mm15	178
22mm15	178
23mm15	178
24mm15	178
25mm15	178
26mm15	178
27mm15	178
28mm15	178
29mm15	178
30mm15	178
32mm15	178
33mm15	178
14mm15	178
35mm15	178
36mm15	178
10mm15-D	178
11mm15-D	178
12mm15-D	178
13mm15-D	178
14mm15-D	178

POWER TOOLS SALES & SERVICE CENTERS

Please note that all locations may not service all products.
Contact the nearest Apex Tool Group Sales & Service Center for the appropriate facility to handle your service requirements.



NORTH AMERICA | SOUTH AMERICA

Detroit, Michigan

Apex Tool Group
2630 Superior Court
Auburn Hills, MI 48236
Phone: +1 (248) 393-5640
Fax: +1 (248) 391-6295

Lexington, South Carolina

Apex Tool Group
670 Industrial Drive
Lexington, SC 29072
Phone: +1 (800) 845-5629
Phone: +1 (919) 387-0099
Fax: +1 (803) 358-7681

Louisville, Kentucky

Apex Tool Group
1000 Glengarry Drive
Suite 150
Fairdale, KY 40118
apexpowertools.com/service

Canada

Apex Tool Canada, Ltd.
7631 Bath Road
Mississauga, Ontario L4T 3T1
Canada
Phone: (866) 691-6212
Fax: (905) 673-4400

Mexico

Apex Tool Group
Manufacturing México
S. de R.L. de C.V.
Vialidad El Pueblito #103
Parque Industrial Querétaro
Querétaro, QRO 76220
Mexico
Phone: +52 (442) 211 3800
Fax: +52 (800) 685 5560

Brazil

Apex Tool Group
Ind. Com. Ferram, Ltda.
Av. Liberdade, 4055
Zona Industrial Iporanga
Sorocaba, São Paulo
CEP# 18087-170
Brazil
Phone: +55 15 3238 3820
Fax: +55 15 3238 3938

EUROPE | MIDDLE EAST | AFRICA

England

Apex Tool Group
GmbH & Co. OHG
C/O Spline Gauges
Piccadilly, Tamworth
Staffordshire B78 2ER
United Kingdom
Phone: +44 1827 8727 71
Fax: +44 1827 8741 28

France

Apex Tool Group S.A.S.
25 rue Maurice Chevalier
B.P. 28
77831 Ozoir-La-Ferrière
Cedex, France
Phone: +33 1 64 43 22 00
Fax: +33 1 64 43 17 17

Germany

Apex Tool Group
GmbH & Co. OHG
Industriestraße 1
73463 Westhausen
Germany
Phone: +49 (0) 73 63 81 0
Fax: +49 (0) 73 63 81 222

Hungary

Apex Tool Group
Hungária Kft.
Platánfa u.2
9027 Győr
Hungary
Phone: +36 96 66 1383
Fax: +36 96 66 1135

ASIA PACIFIC

Australia

Apex Tool Group
519 Nuringong Street, Albury
NSW 2640
Australia
Phone: +61 2 6058 0300

China

Apex Power Tool Trading
(Shanghai) Co., Ltd
Building A8, No. 38
Dongsheng Road
Pudong, Shanghai
China 201201
Phone: +86 21 60880320
Fax: +86 21 60880298

India

Apex Power Tools India
Private Limited
Gala No. 1, Plot No. 5
S. No. 234, 235 & 245
Indialand Global
Industrial Park
Taluka-Mulsi, Phase I
Hinjawadi, Pune 411057
Maharashtra, India
Phone: +91 020 66761111

Japan

Apex Tool Group Japan
Korin-Kaikan 5F,
3-6-23 Shibakoen, Minato-Ku,
Tokyo 105-0011, JAPAN
Phone: +81-3-6450-1840
Fax: +81-3-6450-1841

Korea

Apex Tool Group Korea
#1503, Hibrand Living Bldg.,
215 Yangjae-dong,
Seocho-gu, Seoul 137-924,
Korea
Phone: +82-2-2155-0250
Fax: +82-2-2155-0252

Recoules Quackenbush®

Apex Tool Group, LLC

Phone: +1 (800) 845-5629
Phone: +1 (919) 387-0099
Fax: +1 (803) 358-7681
www.apexpowertools.com