# Cutting Iubricants

Euroboor spends a lot of time and effort on pushing boundaries to make your drilling process far more efficient. This continuous research and development is reflected in superior quality magnetic drilling machines, annular cutters and all other kinds of tools and accessories. While this lays the basis for optimum drilling and cutting performance, there is also the hugely important, often underestimated, factor of proper cooling and lubrication.

However sharp, stable or fast a cutting tool may be, working with metal is a demanding job which generates friction and heat, impacting end result, processing time and durability.

#### Lubrication

A suitable lubricant will reduce friction greatly. The tool will set itself much better and will generate less vibrations. A smoother operation means less power needs to be put into the job, the finished result will be more precise and operation time can be reduced by up to 30%.

#### Cooling

Processing metals can, as generally known, produce a lot of heat. Overheating can have serious negative effects on the behaviour of the workpiece and tool, and thus the overall performance. The result is generally an increased processing time, but not being

able to complete the job might even be possible as well. Inappropriate cooling can lead to specific issues, such as unreliable slug ejection when working with annular cutters.

#### Protection

For example, think about the discolouration of your metal workpiece or about the sizing accuracy of drilled holes after cooling down. When pushing your cutting tools fast and hard, burning them up might even be possible quicker than you would have imagined. With the use of appropriate lubrication and cooling you are able to actively protect the workpiece and used tools.

#### Durability

Making sure a cutting tool is able to perform smoothly and constantly by proper cooling and lubrication will increase its functional life significantly. Taking annular cutting as an example, both the drilling machine and cutter will benefit from the drastically reduced stress. Depending on circumstances, an annular cutter can last up to 5 times longer when properly taken care of during operation!

#### Our offering

Euroboor offers a wide range of well-considered cooling and lubrication products to match your requirements. If you are processing high-tensile strength stainless steel or need to cut a plain aluminium bar, create large-bore holes or prepare a fine-coarse thread, whether working on a drilling line or in difficult spots on location, we can help you out with just the right lubricant.

# The use of appropriate cutting lubricant adds value to your business operation

- · Higher quality workpiece finishing
- · Minimised tool wear and replacement
- · Reduced processing time & lower operation cost

Materia	ıl applica	tion	Optimal O	Good O	Possible										
	Material	Plastics GRP/ CRP	Brass, Copper, Tin	Grey cast iron	Steel	Steel					Stainless steel		Aluminium		Rails
Oil					< 500N	< 750N	< 900N	< 1,100N	< 1,400N	< 900N	≤ 900N	< 10% Si	≤ 10% Si		
IBO.10	<b>८</b> '	0	0	0	•	•	•	•	•	0	0	0	0	0	0
IBO.P91	1 💌	0	0	0	•	•	•	•	•	0	0	0	0	0	0
IBO.20	<b>♦</b> '	0		•	0	0	0	0	0	•	•			•	•
IBO.50	<b>∆</b> '	0	•	0	0	0	0	0	0	0	0	•	•	0	0
IBO.60	٨,	0	0	0	•	•	•	•	•	0	0	0	0	0	0
MV.4	<b>♦</b> '	0	0	0	•	•	•	•	•	0	0	0	0	0	0
IBO.30		0	0	0	•	•	•	•	•	0	0	0	0	0	0
IBP.70	400			•	•	•	•	•	•	•	•			•	•

This overview only offers an indication of use. Further information on lubrication and material behaviour on request. Always try the chosen cutting lubricant on a test piece first.

<sup>\*</sup> Inconnell, Nimonic, HARDOX and Hastelloy

#### Cutting oils, sprays, paste and gearbox oil



Watch our machines in action on: www.youtube.com/euroboorby



#### General usage

#### **IBO.10**

#### Mild steel lubricating and cooling cutting oil

General cutting oil offering premium cooling and lubrication for most common mild steel projects. High-cutting power tool preservation and improved processing times.

IBO.1001 (1 litre)

IBO.1050 (5 liters)



#### MV.4

#### All metals lubricating and cooling concentrate

User and environmentally friendly water-soluble cooling and lubricating concentrate. Particularly suitable for automatic dosing systems, offering efficient cooling on the majority of metal workpieces. No harmful mist formation and economical in use (can be diluted up to 1:20 ratio).

MV.4001 (1 litre)

MV.4050 (5 liters)



#### Specialised usage

#### IBO.20

# Inox, chromium and nickel lubricating and cooling cutting oil

Heavy duty cutting oil with extremely efficient lubricating and cooling properties, solely for use on hard (plated) materials such as stainless steel, chromium and nickel. Drill up to two times faster, while minimising the chance of burnt tool bits and discoloured workpieces.

IBO.2001 (1 litre)

IBO.2050 (5 liters)

#### IBO.5

#### Non-ferrous metals cutting oil

Mild paraffin-based mineral oil with excellent lubricating possibilities for softer, non-ferrous, metals such as aluminium, copper and zinc. Highly effective in preventing discoloration and deformation of the workpiece and enhancing drilling performance.

IBO.5001 (1 litre)

IBO.5050 (5 liters)

#### **IBO.60**

#### Tapping and threading oil

Universal non-staining cutting oil, specifically for tapping and threading. Offers consistent lubrication and enhances the precision of your operation. The unique properties actively help chip clearance and keep your tools sharp.

IBO.6001 (1 litre)

IBO.6050 (5 liters)









# IBO-P.911 Biodegradable Mild steel lubricating and cooling cutting oil spray

Premium metal processing cooling and lubrication in spray can form, suitable for use on mild steel.
Highly versatile in use and ideal for tool preparation.

IBO-P.911.500 (500 ml)



#### IBO.30 All metals lubricating and cooling cutting oil spray

Versatile spray with high-cooling and evaporation properties. Ideal for the (after) cooling of all workpieces and tools. The minimal harmful contents and minimal greasy residue facilitate further proceedings with the workpiece.

IBO.30 (500 ml)

#### IBP.70

#### High-alloy steel cutting paste

A cutting compound for metal, with strong adhesive strength on materials and tools, for vertical and upside down applications where liquid metal working oils can't be used. Based on mineral oil with carefully selected extreme pressure additives with excellent lubricating properties for low tool wear and excellent surface quality. Suitable for drilling, milling, tapping, threading and punching of high-alloy steel grades.

IBP.70 (1 liters)



### Gearbox oil

#### IBO.G1

Offered as official Euroboor spare part, IBO.G1 is the recommended oil for Euroboor magnetic drilling machines with oil lubricated gearboxes. This is the only gear lubricant which is able to meet our highrequirements for operating temperature, minimal wear and high-machine efficiency.

#### For use with:

ECO.30s+, ECO.40s, ECO.40s+, ECO.50s, ECO.50s+, ECO.55s/T, ECO.55s+/T, ECO.55s+/TA, ECO.60s, ECO.60s+, ECO.80s+, ECO.100s+/T, ECO.100s+/TD, TUBE.30s+ and TUBE.55s/T, TUBE.55s+/T.

IBO.G101 (1 litre)





# Multifunctional oil spray



#### Operational use:

- Rust removing
- Lubricating
- Contact improving
- Cleaning
- · Corrosion protective
- Moisture repellent

#### **IBO.40**

Universal problem solving and preventing spray, suitable for the maintenance of tools and other moving parts. Also suitable as protector of electronics. Does not contain silicones, water or graphite.

IBO.40 (400 ml)



# Euroboor Annular cutters



Watch our machines in action on: www.youtube.com/euroboorby



### **Annular cutters**

- + Longer lifespan
- + Exact dimensions
- + Unique teeth geometry
- + Optimum chip clearance
- + Superior slug ejection



# High-precision shanks, various connections



Weldon 19.05 mm (3/4")



WelNit 19.05 mm (3/4")



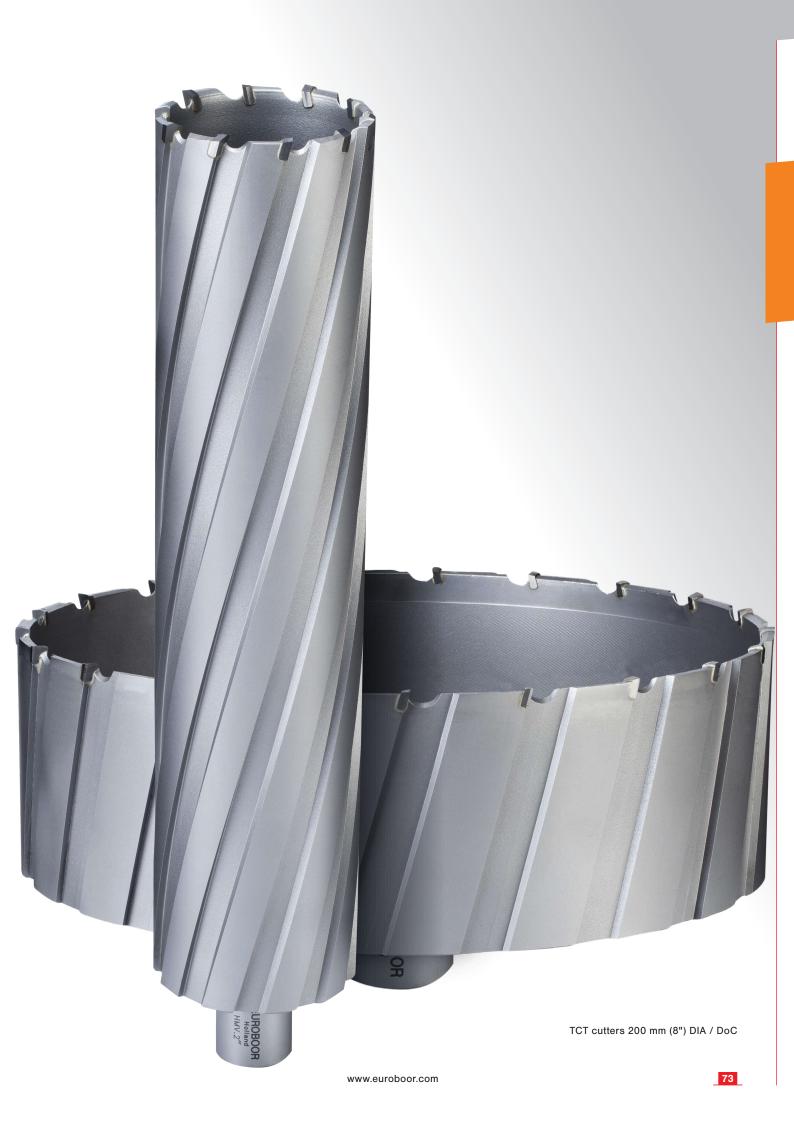
Weldon 31.75 mm (1 1/4")

# **Pilot pins**

Pilot pins are essential for the use of annular cutters, as they provide the following practical uses:

- Centration of cutter
- · Control of oil flow
- Slug ejection
- 1. Pilot pin
- 2. Annular cutter
- 3. Pilot pin inside annular cutter
- 4. Place in arbor magnetic drilling machine and commence drilling





# Euroboor annular cutter portfolio

### Geometry

# Altering cutting teeth angles for precise and clear cuts

On our HSS and TCT cutters every tooth does its own job, working together to cut cleaner and quicker. They actually save time!



TCT cutters have three different teeth



HSS cutters have two different teeth

## Did you know?

- With the right lubrication tool life is drastically improved;
- Drilling with cutters is best with internal cooling;
- A perfect fitting pilot pin prevents cutter breakage;
- TCT cutters need a higher speed than HSS cutters;
- Euroboor HSS cutters have an extra landing on the outside and cut more accurate with less friction;
- Euroboor cutters have a grounded inside which offers expansion room to slug;
- Metric & imperial specific sizes and shank variations can be supplied on request.

Weldon shank

## **Shank**

Euroboor annular cutters are standard equipped with highprecision Weldon shanks. Depending on the cutter size and specification; 19.05 mm (3/4") or 31.75 mm (1 1/4"). Additionally we also offer cutters with double shank design. These annular cutters have an increased practical application, as they are suitable for use on machinery requiring Weldon fitment as well as machinery with Nitto fitment.



WelNit shank

# The No. 1 choice in HSS, HSS-Cobalt and TCT

We offer a well-considered range of annular cutters, designed to exceed your requirements. Many years of our hands-on experience are reflected in the unique features of our cutters. We do not compromise on quality and for that reason our cutters are appreciated worldwide for optimum performance, durability and longer functional life in all industries. From small scale fabrication to the oil and shipping industry, and from large scale fabrication to construction, and beyond.





#### Annular cutter overview

Depth of C	Cut (DoC	)		Ø Metric (mm) Weldon	Ø Metric (mm) Universal / WelNit	Ø Imperial (inch) Weldon	Ø Imperial (inch) Universal / WelNit
25 mm	1"	TCT Rail		17 - 36	-	-	-
30 mm	1"	HSS		12 - 100	12 - 60	7/16" - 4"	-
30 mm	1"	HSS-Cobalt	5%	12 - 60	-	7/16" - 2 5/16"	-
35 mm	1"	тст		61 - 100	12 - 60	2 3/8" - 4"	7/16" - 2 5/16"
35 mm	1"	TCT Rail		17 - 36	-	-	-
55 mm	2"	HSS		12 - 100	12 - 60	7/16" - 4"	7/16" - 2 5/16"
55 mm	2"	HSS Stack		18 - 32	-	11/16" - 1 1/4"	-
55 mm	2"	HSS-Cobalt !	5%	12 - 60	-	7/16" - 2 5/16"	-
55 mm	2"	тст		61 - 200	12 - 60	2 3/8" - 8"	7/16" - 2 5/16"
75 mm	3"	HSS		14 - 50	-	-	-
75 mm	3"	HSS Stack		18 - 32	-	11/16" - 1 1/4"	-
75 mm	3"	HSS-Cobalt	5%	-	-	7/16" - 2 5/16"	-
75 mm	3"	тст		-	12 - 50	2 3/8" - 3"	7/16" - 2 5/16"
100 mm	4"	HSS		18 - 50	-	-	-
100 mm	4"	тст		61 - 200	12 - 60	2 3/8" - 8"	7/16" - 2 5/16"
150 mm	6"	тст		61 - 200	22 - 60	2 3/8" - 8"	7/8" - 2 5/16"
200 mm	8"	TCT		61 - 200	22 - 60	2 3/8" - 8"	7/8" - 2 5/16"

Material appliance														
Material	Plastics	Brass,	Grey	Steel					Stainless steel		Aluminium		Exotic materials*	Rails
Cutter	GRP/ CRP			<500N <750N <900N <1		< 1,100N	< 1,400N	< 900N ≤ 900N		< 10% Si	materials* Si ≤ 10% Si			
HSS	•	0		•	•	0					0			
HSS-Cobalt	•	•	0	•	•	•	0	0	0	0	•	0	0	
тст		0	•	•	•	•	•	•	•	•	•	•	•	0
TCT Rail		0	•	•	•	•	•	•	•	•	•	•	•	•

<sup>\*</sup> Inconnell, Nimonic, HARDOX, Hastelloy

### **Annular cutter**

# High Speed Steel

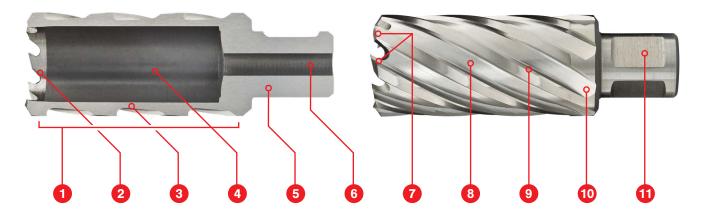


HSS annular cutters, with unique teeth geometry, provide clear cutting, fast feed rate, less vibration, smooth hole surface and long tool life. They are better and quicker than twist drills. HSS annular cutters can be used on all kinds of magnetic drilling machines. They can be widely used in drilling steel, copper, aluminium, stainless

steel and plastic, in either plate or pipe form. The HSS annular cutters have gained huge popularity in the market. The entire range is available in various specifications that can be customised as per your requirements.

HSS mate	erial applic	ation	Optimal O	Good O	Possible								
Plastics GRP/CRP	Brass, Copper, Tin	Grey cast iron	Steel					Stainless	s steel	Aluminiu	m	Exotic materials, Inconnell, Nimonic, HARDOX, Hastelloy	Rails
			< 500N	< 750N	< 900N	< 1,100N	< 1,400N	< 900N	≤ 900N	< 10% Si	≤ 10% Si		
•	0		•	•	0					0			

# **HSS** profile



- Stage hardening. Combines maximum hardness at the teeth with superior strength at the cutter body, reducing breakage to a minimum.
- Inner ground cutting teeth.

  Helps stable "setting" of the cutter, reduces friction during drilling and helps slug ejection.
- Wall thickness matched to the diameter of the cutter, combining the best possible cutting time with strength.
- Tapered inside fitment prevents 6.
  the cutter getting stuck.
  Guaranteed slug ejection with
  usage of the correct pilot pin.
- Precise shank fitment for maximum interchangeability and close tolerance drilling without run-out.
- Precise pilot pin fitment for perfect centration, hassle-free pin retraction and controlled lubricant flow.
  - Altering "continuous pre-cut" teeth geometry. Generates faster and more stable drilling
- performance and results in clear cuts of the highest precision and smooth, burrfree finishes.
- Well-thought-out spiral flute angles for optimal chip removal.
- Specially designed blades for optimum stability and heatreduction.
- Number of flutes and teeth matched to the diameter of the cutter for the best tooth load and superior cutting speeds.
- 11. Precision ground shanks for optimum fitment of the cutter itself in the tool holder and of pilot pin in the annular cutter. Increases safety, stability and accurate hole dimensions.

	DoC 30 mm Weldon	DoC 30 mm Universal	DoC 55 mm Weldon	DoC 55 mm Universal	DoC 75 mm Weldon	DoC 100 mm Weldon
DIA	Ø 12 - 100 mm	Ø 12 - 60 mm	Ø 12 - 100 mm	Ø 12 - 60 mm	Ø 14 - 50 mm	Ø 18 - 50 mm
	Code	Code	Code	Code	Code	Code
Ø 12	HCS.120	HCSU.120	HCL.120	HCLU.120	HCY.120	HCX.120
Ø 13	HCS.130	HCSU.130	HCL.130	HCLU.130	HCY.130	HCX.130
Ø 13.5	HCS.135		HCL.135			
Ø 14	HCS.140	HCSU.140	HCL.140	HCLU.140	HCY.140	HCX.140
Ø 15	HCS.150	HCSU.150	HCL.150	HCLU.150	HCY.150	HCX.150
Ø 15.5	HCS.155		HCL.155			
Ø 16	HCS.160	HCSU.160	HCL.160	HCLU.160	HCY.160	HCX.160
Ø 17	HCS.170	HCSU.170	HCL.170	HCLU.170	HCY.170	HCX.170
Ø 17.5	HCS.175		HCL.175			
Ø 18	HCS.180	HCSU.180	HCL.180	HCLU.180	HCY.180	HCX.180
Ø 19	HCS.190	HCSU.190	HCL.190	HCLU.190	HCY.190	HCX.190
Ø 19.5	HCS.195		HCL.195			
Ø 20	HCS.200	HCSU.200	HCL.200	HCLU.200	HCY.200	HCX.200
Ø 21	HCS.210	HCSU.210	HCL.210	HCLU.210	HCY.210	HCX.210
Ø 21.5	HCS.215		HCL.215			
Ø 22	HCS.220	HCSU.220	HCL.220	HCLU.220	HCY.220	HCX.220
Ø 23	HCS.230	HCSU.230	HCL.230	HCLU.230	HCY.230	HCX.230
Ø 24	HCS.240	HCSU.240	HCL.240	HCLU.240	HCY.240	HCX.240
Ø 24 Ø 25	HCS.250	HCSU.250	HCL.250	HCLU.250	HCY.250	HCX.250
Ø 26	HCS.260	HCSU.260	HCL.260	HCLU.260	HCY.260	HCX.260
Ø 26.5	HCS.265	11030.200	HCL.265	HOLO.200	HC1.200	HOX.200
		H00H 070		HOLLI 270	HCV 270	HCV 270
Ø 27	HCS.270	HCSU.270	HCL.270	HCLU.270	HCY.270	HCX.270
Ø 28	HCS.280	HCSU.280	HCL.280	HCLU.280	HCY.280	HCX.280
Ø 29	HCS.290	HCSU.290	HCL.290	HCLU.290	HCY.290	HCX.290
Ø 30	HCS.300	HCSU.300	HCL.300	HCLU.300	HCY.300	HCX.300
Ø 31	HCS.310	HCSU.310	HCL.310	HCLU.310	HCY.310	HCX.310
Ø 32	HCS.320	HCSU.320	HCL.320	HCLU.320	HCY.320	HCX.320
Ø 33	HCS.330	HCSU.330	HCL.330	HCLU.330	HCY.330	HCX.330
Ø 34	HCS.340	HCSU.340	HCL.340	HCLU.340	HCY.340	HCX.340
Ø 35	HCS.350	HCSU.350	HCL.350	HCLU.350	HCY.350	HCX.350
Ø 36	HCS.360	HCSU.360	HCL.360	HCLU.360	HCY.360	HCX.360
Ø 37	HCS.370	HCSU.370	HCL.370	HCLU.370	HCY.370	HCX.370
Ø 38	HCS.380	HCSU.380	HCL.380	HCLU.380	HCY.380	HCX.380
Ø 39	HCS.390	HCSU.390	HCL.390	HCLU.390	HCY.390	HCX.390
Ø 40	HCS.400	HCSU.400	HCL.400	HCLU.400	HCY.400	HCX.400
Ø 41	HCS.410	HCSU.410	HCL.410	HCLU.410	HCY.410	HCX.410
Ø 42	HCS.420	HCSU.420	HCL.420	HCLU.420	HCY.420	HCX.420
Ø 43	HCS.430	HCSU.430	HCL.430	HCLU.430	HCY.430	HCX.430
Ø 44	HCS.440	HCSU.440	HCL.440	HCLU.440	HCY.440	HCX.440
Ø 45	HCS.450	HCSU.450	HCL.450	HCLU.450	HCY.450	HCX.450
Ø 46	HCS.460	HCSU.460	HCL.460	HCLU.460	HCY.460	HCX.460
Ø 47	HCS.470	HCSU.470	HCL.470	HCLU.470	HCY.470	HCX.470
Ø 48	HCS.480	HCSU.480	HCL.480	HCLU.480	HCY.480	HCX.480
Ø 49	HCS.490	HCSU.490	HCL.490	HCLU.490	HCY.490	HCX.490
Ø 50	HCS.500	HCSU.500	HCL.500	HCLU.500	HCY.500	HCX.500
Ø 51	HCS.510	HCSU.510	HCL.510	HCLU.510		
Ø 52	HCS.520	HCSU.520	HCL.520	HCLU.520		
Ø 53	HCS.530	HCSU.530	HCL.530	HCLU.530		
Ø 54	HCS.540	HCSU.540	HCL.540	HCLU.540		
Ø 55	HCS.550	HCSU.550	HCL.550	HCLU.550		
Ø 56	HCS.560	HCSU.560	HCL.560	HCLU.560		
Ø 57	HCS.570	HCSU.570	HCL.570	HCLU.570		
Ø 58	HCS.580	HCSU.580	HCL.580	HCLU.580		
	1100.000	11000.000	1102.000	11023.300		



Weldon shank



Universal shank



Shank sizes

DIA Ø 12 - 60 mm: 19.05 mm (3/4")

DIA Ø 61 - 100 mm: 31.75 mm (1 1/4")



DoC Depth of Cut measured inside cutter

#### DoC 75 mm (HCY)

DIA Ø 51 - 100 mm: Available on request

#### DoC 100 mm (HCX)

DIA Ø 51 - 100 mm: Available on request



Weldon shank



Universal shank



Shank sizes

DIA Ø 12 - 60 mm: 19.05 mm (3/4")

DIA Ø 61 - 100 mm: 31.75 mm (1 1/4")



DoC Depth of Cut measured inside cutter

	DoC 30 mm Weldon	DoC 30 mm Universal	DoC 55 mm Weldon	DoC 55 mm Universal	DoC 75 mm Weldon	DoC 100 mm Weldon
DIA	Ø 12 - 100 mm	Ø 12 - 60 mm	Ø 12 - 100 mm	Ø 12 - 60 mm	Ø 14 - 50 mm	Ø 18 - 50 mm
	Code	Code	Code	Code	Code	Code
Ø 60	HCS.600	HCSU.600	HCL.600	HCLU.600		
Ø 61	HCS.610		HCL.610			
Ø 62	HCS.620		HCL.620			
Ø 63	HCS.630		HCL.630			
Ø 64	HCS.640		HCL.640			
Ø 65	HCS.650		HCL.650			
Ø 66	HCS.660		HCL.660			
Ø 67	HCS.670		HCL.670			
Ø 68	HCS.680		HCL.680			
Ø 69	HCS.690		HCL.690			
Ø 70	HCS.700		HCL.700			
Ø 71	HCS.710		HCL.710			
Ø 72	HCS.720		HCL.720			
Ø 73	HCS.730		HCL.730			
Ø 74	HCS.740		HCL.740			
Ø 75	HCS.750		HCL.750			
Ø 76	HCS.760		HCL.760			
Ø 77	HCS.770		HCL.770			
Ø 78	HCS.780		HCL.780			
Ø 79	HCS.790		HCL.790			
Ø 80	HCS.800		HCL.800			
Ø 81	HCS.810		HCL.810			
Ø 82	HCS.820		HCL.820			
Ø 83	HCS.830		HCL.830			
Ø 84	HCS.840		HCL.840			
Ø 85	HCS.850		HCL.850			
Ø 86	HCS.860		HCL.860			
Ø 87	HCS.870		HCL.870			
Ø 88	HCS.880		HCL.880			
Ø 89	HCS.890		HCL.890			
Ø 90	HCS.900		HCL.900			
Ø 91	HCS.910		HCL.910			
Ø 92	HCS.920		HCL.920			
Ø 93	HCS.930		HCL.930			
Ø 94	HCS.940		HCL.940			
Ø 95	HCS.950		HCL.950			
Ø 96	HCS.960		HCL.960			
Ø 97	HCS.970		HCL.970			
Ø 98	HCS.970		HCL.980			
Ø 99	HCS.980		HCL.980			
Ø 100	HCS.1000		HCL.1000			

#### DoC 75 mm (HCY)

DIA Ø 51 - 100 mm: Available on request

#### DoC 100 mm (HCX)

DIA Ø 51 - 100 mm: Available on request

	DoC 1" Weldon	DoC 2" Weldon	DoC 2" Universal
DIA	Ø 7/16" - 4"	Ø 7/16" - 4"	Ø 7/16" - 2 5/16"
	Code	Code	Code
Ø 7/16"	HCS.7/16"	HCL.7/16"	HCLU.7/16"
Ø 1/2"	HCS.1/2"	HCL.1/2"	HCLU.1/2"
Ø 9/16"	HCS.9/16"	HCL.9/16"	HCLU.9/16"
Ø 5/8"	HCS.5/8"	HCL.5/8"	HCLU.5/8"
Ø 11/16"	HCS.11/16"	HCL.11/16"	HCLU.11/16"
Ø 3/4"	HCS.3/4"	HCL.3/4"	HCLU.3/4"
Ø 13/16"	HCS.13/16"	HCL.13/16"	HCLU.13/16"
Ø 7/8"	HCS.7/8"	HCL.7/8"	HCLU.7/8"
Ø 15/16"	HCS.15/16"	HCL.15/16"	HCLU.15/16"
Ø 1"	HCS.1"	HCL.1"	HCLU.1"
Ø 1 1/16"	HCS.1-1/16"	HCL.1-1/16"	HCLU.1-1/16"
Ø 1 1/8"	HCS.1-1/8"	HCL.1-1/8"	HCLU.1-1/8"
Ø 1 3/16"	HCS.1-3/16"	HCL.1-3/16"	HCLU.1-3/16"
Ø 1 1/4"	HCS.1-3/16	HCL.1-1/4"	HCLU.1-1/4"
Ø 1 5/16"	HCS.1-1/4	HCL.1-5/16"	HCLU.1-5/16"
Ø 1 3/8"	HCS.1-3/16"	HCL.1-3/16"	HCLU.1-5/16"
Ø 1 7/16"	HCS.1-3/6	HCL.1-7/16"	HCLU.1-3/6"
Ø 1 1/2"			HCLU.1-1/2"
	HCS.1-1/2"	HCL.1-1/2"	
Ø 1 9/16"	HCS.1-9/16"	HCL.1-9/16"	HCLU.1-9/16"
Ø 1 5/8"	HCS.1-5/8"	HCL.1-5/8"	HCLU.1-5/8"
Ø 1 11/16"	HCS.1-11/16"	HCL.1-11/16"	HCLU.1-11/16"
Ø 1 3/4"	HCS.1-3/4"	HCL.1-3/4"	HCLU.1-3/4"
Ø 1 13/16"	HCS.1-13/16"	HCL.1-13/16"	HCLU.1-13/16"
Ø 1 7/8"	HCS.1-7/8"	HCL.1-7/8"	HCLU.1-7/8"
Ø 1 15/16"	HCS.1-15/16"	HCL.1-15/16"	HCLU.1-15/16"
Ø 2"	HCS.2"	HCL.2"	HCLU.2"
Ø 2 1/16"	HCS.2-1/16"	HCL.2-1/16"	HCLU.2-1/16"
Ø 2 1/8"	HCS.2-1/8"	HCL.2-1/8"	HCLU.2-1/8"
Ø 2 3/16"	HCS.2-3/16"	HCL.2-3/16"	HCLU.2-3/16"
Ø 2 1/4"	HCS.2-1/4"	HCL.2-1/4"	HCLU.2-1/4"
Ø 2 5/16"	HCS.2-5/16"	HCL.2-5/16"	HCLU.2-5/16"
Ø 2 3/8"	HCS.2-3/8"	HCL.2-3/8"	
Ø 2 7/16"	HCS.2-7/16"	HCL.2-7/16"	
Ø 2 1/2"	HCS.2-1/2"	HCL.2-1/2"	
Ø 2 9/16"	HCS.2-9/16"	HCL.2-9/16"	
Ø 2 5/8"	HCS.2-5/8"	HCL.2-5/8"	
Ø 2 11/16"	HCS.2-11/16"	HCL.2-11/16"	
Ø 2 3/4"	HCS.2-3/4"	HCL.2-3/4"	
Ø 2 13/16"	HCS.2-13/16"	HCL.2-13/16"	
Ø 2 7/8"	HCS.2-7/8"	HCL.2-7/8"	
Ø 2 15/16"	HCS.2-15/16"	HCL.2-15/16"	
Ø 3"	HCS.3"	HCL.3"	
Ø 3 1/16"	HCS.3-1/16"	HCL.3-1/16"	
Ø 3 1/8"	HCS.3-1/8"	HCL.3-1/8"	
Ø 3 3/16"	HCS.3-3/16"	HCL.3-3/16"	
Ø 3 1/4"	HCS.3-1/4"	HCL.3-1/4"	
Ø 3 5/16"	HCS.3-5/16"	HCL.3-5/16"	
Ø 3 3/8"	HCS.3-3/8"	HCL.3-3/8"	
Ø 3 7/16"	HCS.3-7/16"	HCL.3-7/16"	
Ø 3 1/2"	HCS.3-1/2"	HCL.3-1/2"	
Ø 3 9/16"	HCS.3-9/16"	HCL.3-9/16"	
Ø 3 5/8"	HCS.3-5/8"	HCL.3-5/8"	
Ø 3 11/16"	HCS.3-11/16"	HCL.3-11/16"	
Ø 3 3/4"	HCS.3-3/4"	HCL.3-3/4"	



Weldon shank



Universal shank



Shank sizes

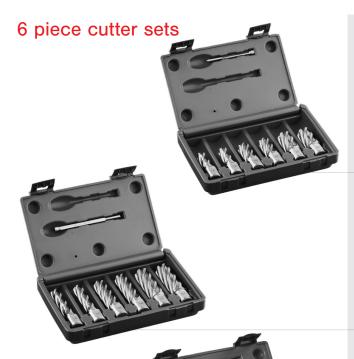
DIA Ø 7/16" - 2 5/16": 3/4"

DIA Ø 2 3/8" - 4": 1 1/4"



DoC Depth of Cut measured inside cutter

	DoC 1" Weldon	DoC 2" Weldon	DoC 2" Universal
DIA	Ø 7/16" - 4"	Ø 7/16" - 4"	Ø 7/16" - 2 5/16"
	Code	Code	Code
Ø 3 13/16"	HCS.3-13/16"	HCL.3-13/16"	
Ø 3 7/8"	HCS.3-7/8"	HCL.3-7/8"	
Ø 3 15/16"	HCS.3-15/16"	HCL.3-15/16"	
Ø 4"	HCS.4"	HCL.4"	



# Set HSS metric

#### DoC 30 mm

- 6 piece annular cutter set
- Cutter sizes Ø 14, 18, 22 mm
   (2 of each DoC)
- Pilot pin IBC.70 included

#### HCS.KIT

# Set HSS imperial

#### DoC 1"

- 6 piece annular cutter set
- Cutter sizes Ø 9/16", 11/16", 13/16"
   (2 of each DoC)
- · Pilot pin IBC.70 included

#### HCS.KIT/8

#### DoC 55 mm

- 6 piece annular cutter set
- Cutter sizes Ø 14, 18, 22 mm (2 of each DoC)
- Pilot pin IBC.90 included

#### HCL.KIT

#### DoC 1" & 2 "

- · 6 piece annular cutter set
- Cutter sizes Ø 9/16", 11/16", 13/16"
   (1 of each DoC)
- Pilot pins IBC.70 & IBC.90 included

#### HCS KIT/9

### 10 piece cutter sets



#### DoC 30 mm

- 10 piece annular cutter set
- Cutter sizes Ø 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm
- Pilot pin IBC.70 included

#### HCS.KIT/10

#### DoC 30 mm

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- 2 x Pilot pin IBC.70 included

#### HSS.KIT/10S-M2

#### DoC 1"

- 10 piece annular cutter set
- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x
   Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- 2 x Pilot pin IBC.70 included

#### HSS.KIT/10S-I1

#### DoC 1"

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- 2 x Pilot pin IBC.70 included

#### HSS.KIT/10S-I2



#### DoC 55 mm

- 10 piece annular cutter set
- Cutter sizes Ø 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm
- 2 x Pilot pin IBC.90 included

#### HCL.KIT/10

#### DoC 55 mm

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- 2 x Pilot pin IBC.90 included

#### HSS.KIT/10L-M2

#### DoC 2"

- 10 piece annular cutter set
- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- 2 x Pilot pin IBC.90 included

#### HSS.KIT/10L-I1

#### DoC 2"

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- 2 x Pilot pin IBC.90 included

#### HSS.KIT/10L-I2

### Annular cutter

# High Speed Steel Stack



Standard HSS Euroboor annular cutters feature teeth geometry which is optimised for use on single layer workpieces, ensuring the fastest and best drilling performance. The rest material created with the use of these cutters is our signature: the Euroboor slug. The rim on this slug is exactly what prevents our standard HSS cutters from penetrating the second layer of material.

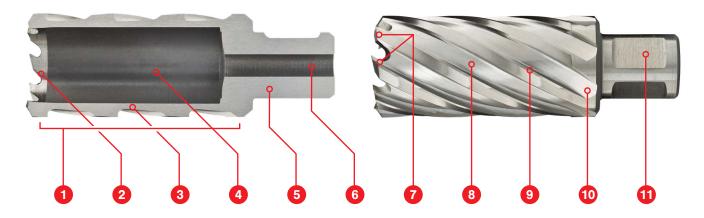
In order to drill multiple layers of material simultaneously, we recommend the use of our annular cutters with stack geometry.

The unique teeth profile ensures safe and stable penetration: layer for layer.

Combined with the standard performance improving characteristics of Euroboor annular cutters this results in smooth layer transitions, precise and clean hole finishes and the time savings you are looking for

HSS stac	k material	application	Optin	nal O Go	od O Pos	sible							
Plastics GRP/CRP	Brass, Copper, Tin	Grey cast iron	Steel					Stainless	steel	Aluminiu	m	Exotic materials, Inconnell, Nimonic, HARDOX,	Rails
			< 500N	< 750N	< 900N	< 1,100N	< 1,400N	< 900N	≤ 900N	< 10% Si	≤ 10% Si	Hastelloy	
•	0		•	•	0					0			

# **HSS** profile



- Stage hardening. Combines maximum hardness at the teeth with superior strength at the cutter body, reducing breakage to a minimum.
- Extra deep inner ground cutting teeth. Helps stable "setting" of the cutter, reduces friction during drilling and helps (multiple) slug ejection.
- Wall thickness matched to the diameter of the cutter, combining the best possible cutting time with strength.
- Tapered inside fitment prevents the cutter getting stuck.
  Guaranteed slug(s) ejection with usage of the correct pilot pin.
- Precise shank fitment for maximum interchangeability and close tolerance drilling without run-out.
- Precise pilot pin fitment for perfect centration, hassle-free pin retraction and controlled lubricant flow.
- Stack teeth geometry ensures stable and precise material
- penetration with fast cutting performance
- Well-thought-out spiral flute angles for optimal chip removal.
- Specially designed blades for optimum stability and heatreduction.
- Number of flutes and teeth matched to the diameter of the
- cutter for the best tooth load and superior cutting speeds.
- 11. Precision ground shanks for optimum fitment of the cutter itself in the tool holder and of pilot pin in the annular cutter. Increases safety, stability and accurate hole dimensions.

### HSS Stack

#### Weldon shank



**Shank sizes**DIA Ø 18 - 32 mm:
19.05 mm (3/4")

DIA Ø 11/16" - 1 1/4":



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DoC
Depth of Cut
measured inside
cutter

	DoC 55 mm Weldon	DoC 75 mm Weldon
DIA	Ø 18 -	32 mm
	Code	Code
Ø 18	HCPL.180	HCPY.180
Ø 19	HCPL.190	HCPY.190
Ø 20	HCPL.200	HCPY.200
Ø 21	HCPL.210	HCPY.210
Ø 22	HCPL.220	HCPY.220
Ø 23	HCPL.230	HCPY.230
Ø 24	HCPL.240	HCPY.240
Ø 25	HCPL.250	HCPY.250
Ø 26	HCPL.260	HCPY.260
Ø 27	HCPL.270	HCPY.270
Ø 28	HCPL.280	HCPY.280
Ø 29	HCPL.290	HCPY.290
Ø 30	HCPL.300	HCPY.300
Ø 31	HCPL.310	HCPY.310
Ø 32	HCPL.320	HCPY.320

	DoC 2" Weldon	DoC 3" Weldon
DIA	Ø 11/1	6" - 1 1/4"
	Code	Code
Ø 11/16"	HCPL.11/16"	HCPY.11/16"
Ø 3/4"	HCPL.3/4"	HCPY.3/4"
Ø 13/16"	HCPL.13/16"	HCPY.13/16"
Ø 7/8"	HCPL.7/8"	HCPY.7/8"
Ø 15/16"	HCPL.15/16"	HCPY.15/16"
Ø 1"	HCPL.1"	HCPY.1"
Ø 1 1/16"	HCPL.1-1/16"	HCPY.1-1/16"
Ø 1 1/8"	HCPL.1-1/8"	HCPY.1-1/8"
Ø 1 3/16"	HCPL.1-3/16"	HCPY.1-3/16"
Ø 1 1/4"	HCPL.1-1/4"	HCPY.1-1/4"





### **Annular cutter**

# High Speed Steel Cobalt

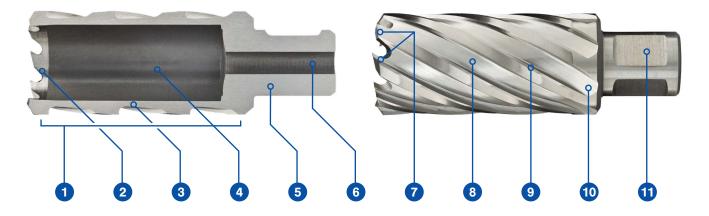


Euroboor HSS-Cobalt annular cutters are made of Molybdenum-Chromium-Vanadium-Tungsten alloy High Speed Steel with an additional 5% Cobalt (HSS-M35), which results in higher hardness but minimizes the chance of cutter breakage. The HSS-Cobalt annular cutter is specifically designed to remain cool when cutting holes. All flutes are fully ground, resulting in super-fast feed rates and smooth

holes in hard materials, providing better chip clearance and higher cutting performances. The M35 HSS-Cobalt annular cutter is widely used in the metalworking industry for its superior red hardness compared to more conventional high speed steels. This will lead to shorter cycle times in production environments due to higher cutting speeds.

HSS-Cob	HSS-Cobalt material application  Optimal O Good O Possible												
Plastics GRP/CRP	Brass, Copper, Tin	Grey cast iron	Steel Stainless steel Aluminium		minium Exotic materials, Inconnell, Nimonic, HARDOX,		Rails						
			< 500N	< 750N	< 900N	< 1,100N	< 1,400N	< 900N	≤ 900N	< 10% Si	≤ 10% Si	Hastelloy	
•	•	0	•	•	•	0	0	0	0	•	0	0	

# **HSS-Cobalt profile**



- Stage hardening. Combines maximum hardness at the teeth with superior strength at the cutter body, reducing breakage to a minimum.
- Inner ground cutting teeth.
   Helps stable "setting" of the cutter, reduces friction during and drilling and helps slug ejection.
- Wall thickness matched to the diameter of the cutter, combining the best possible cutting time with strength.
- Tapered inside fitment prevents 6.
  the cutter getting stuck.
  Guaranteed slug ejection with
  usage of the correct pilot pin.
- Precise shank fitment for maximum interchangeability and close tolerance drilling without run-out.
- Precise pilot pin fitment for perfect centration, hassle-free pin retraction and controlled lubricant flow.
  - Altering "continuous pre-cut" teeth geometry. Generates faster and more stable drilling
- performance and results in clear cuts of the highest precision and smooth, burrfree finishes.
- Well-thought-out spiral flute angles for optimal chip removal.
- Specially designed blades for optimum stability and heatreduction
- Number of flutes and teeth matched to the diameter of the cutter for the best tooth load and superior cutting speeds.
- Precision ground shanks for optimum fitment of the cutter itself in the tool holder and of pilot pin in the annular cutter. Increases safety, stability and accurate hole dimensions.

### HSS Cobalt

Weldon shank



Shank sizes DIA Ø 12 - 60 mm: 19.05 mm (3/4")

DIA Ø 7/16" - 2 5/16":



DoC Depth of Cut measured inside cutter

DIA         Ø 12 - 60 mm           Code         Code           Ø 12         IBS.120         IBL.120           Ø 13         IBS.130         IBL.130           Ø 14         IBS.140         IBL.150           Ø 15         IBS.150         IBL.150           Ø 16         IBS.160         IBL.160           Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.190           Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.200           Ø 21         IBS.210         IBL.200           Ø 21         IBS.230         IBL.220           Ø 23         IBS.230         IBL.220           Ø 23         IBS.250         IBL.250           Ø 24         IBS.250         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.270           Ø 29         IBS.290         IBL.300           Ø 31         IBS.300         IBL.300           Ø 31         IBS.300         IBL.310           Ø 32         IBS.320         IBL.340		DoC 30 mm Weldon	DoC 55 mm Weldon
Code         Code           Ø 12         IBS.120         IBL.120           Ø 13         IBS.130         IBL.130           Ø 14         IBS.140         IBL.140           Ø 15         IBS.150         IBL.150           Ø 16         IBS.160         IBL.160           Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.170           Ø 18         IBS.190         IBL.190           Ø 20         IBS.200         IBL.210           Ø 22         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.220           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.240           Ø 25         IBS.250         IBL.240           Ø 26         IBS.260         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.270           Ø 28         IBS.280         IBL.320           Ø 30         IBS.300         IBL.330           Ø 31         IBS.310         IBL.330           Ø 31         IBS.330         I	DIA	Ø 12 -	60 mm
Ø 13         IBS.130         IBL.130           Ø 14         IBS.140         IBL.140           Ø 15         IBS.150         IBL.150           Ø 16         IBS.150         IBL.150           Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.170           Ø 18         IBS.190         IBL.190           Ø 20         IBS.200         IBL.190           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.220           Ø 23         IBS.230         IBL.240           Ø 24         IBS.240         IBL.250           Ø 25         IBS.250         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.270           Ø 29         IBS.290         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.330           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.370           Ø 38 <td< th=""><th></th><th>Code</th><th>Code</th></td<>		Code	Code
Ø 14         IBS.140         IBL.140           Ø 15         IBS.150         IBL.150           Ø 16         IBS.160         IBL.150           Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.180           Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.240           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.260           Ø 26         IBS.250         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.300           Ø 31         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.330           Ø 33         IBS.330         IBL.330           Ø 34         IBS.350         IBL.350           Ø 35         IBS.350         IBL.370           Ø 38 <td< td=""><td>Ø 12</td><td>IBS.120</td><td>IBL.120</td></td<>	Ø 12	IBS.120	IBL.120
Ø 15         IBS.150         IBL.150           Ø 16         IBS.160         IBL.160           Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.170           Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.250         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.300           Ø 31         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.370           Ø 38         IBS.390         IBL.370           Ø 39 <th< td=""><td>Ø 13</td><td>IBS.130</td><td>IBL.130</td></th<>	Ø 13	IBS.130	IBL.130
Ø 16         IBS.160         IBL.160           Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.180           Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.220           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.240           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.330         IBL.330           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.350           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.390         IBL.390           Ø 40 <td< td=""><td>Ø 14</td><td>IBS.140</td><td>IBL.140</td></td<>	Ø 14	IBS.140	IBL.140
Ø 17         IBS.170         IBL.170           Ø 18         IBS.180         IBL.180           Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.300           Ø 31         IBS.300         IBL.310           Ø 32         IBS.330         IBL.330           Ø 33         IBS.340         IBL.330           Ø 34         IBS.340         IBL.350           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.370           Ø 38         IBS.370         IBL.370           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41 <th< td=""><td>Ø 15</td><td>IBS.150</td><td>IBL.150</td></th<>	Ø 15	IBS.150	IBL.150
Ø 18         IBS.180         IBL.190           Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.300           Ø 31         IBS.330         IBL.330           Ø 33         IBS.330         IBL.340           Ø 35         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.380           Ø 37         IBS.370         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42 <td< td=""><td>Ø 16</td><td>IBS.160</td><td>IBL.160</td></td<>	Ø 16	IBS.160	IBL.160
Ø 19         IBS.190         IBL.190           Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.340           Ø 35         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41 <td< td=""><td>Ø 17</td><td>IBS.170</td><td>IBL.170</td></td<>	Ø 17	IBS.170	IBL.170
Ø 20         IBS.200         IBL.200           Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.280           Ø 29         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.300           Ø 31         IBS.330         IBL.330           Ø 32         IBS.320         IBL.330           Ø 33         IBS.330         IBL.350           Ø 34         IBS.340         IBL.350           Ø 35         IBS.350         IBL.360           Ø 37         IBS.370         IBL.360           Ø 37         IBS.370         IBL.380           Ø 39         IBS.390         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.440         IBL.420           Ø 43 <td< td=""><td>Ø 18</td><td>IBS.180</td><td>IBL.180</td></td<>	Ø 18	IBS.180	IBL.180
Ø 21         IBS.210         IBL.210           Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.250           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.360           Ø 37         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43 <td< td=""><td>Ø 19</td><td>IBS.190</td><td>IBL.190</td></td<>	Ø 19	IBS.190	IBL.190
Ø 22         IBS.220         IBL.220           Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.250           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.320         IBL.320           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.350         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.450         IBL.440           Ø 44         IBS.450         IBL.460           Ø 47 <td< td=""><td>Ø 20</td><td>IBS.200</td><td>IBL.200</td></td<>	Ø 20	IBS.200	IBL.200
Ø 23         IBS.230         IBL.230           Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.320         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.460           Ø 47 <td< td=""><td>Ø 21</td><td>IBS.210</td><td>IBL.210</td></td<>	Ø 21	IBS.210	IBL.210
Ø 24         IBS.240         IBL.240           Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.320         IBL.320           Ø 34         IBS.340         IBL.330           Ø 34         IBS.340         IBL.350           Ø 35         IBS.350         IBL.350           Ø 36         IBS.350         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.450         IBL.440           Ø 44         IBS.450         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48 <td< td=""><td>Ø 22</td><td>IBS.220</td><td>IBL.220</td></td<>	Ø 22	IBS.220	IBL.220
Ø 25         IBS.250         IBL.250           Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.420         IBL.420           Ø 44         IBS.440         IBL.450           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.480           Ø 49 <td< td=""><td>Ø 23</td><td>IBS.230</td><td>IBL.230</td></td<>	Ø 23	IBS.230	IBL.230
Ø 26         IBS.260         IBL.260           Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.300           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.390         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.450           Ø 46         IBS.450         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.500         IBL.500           Ø 51 <td< td=""><td>Ø 24</td><td>IBS.240</td><td>IBL.240</td></td<>	Ø 24	IBS.240	IBL.240
Ø 27         IBS.270         IBL.270           Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.410         IBL.420           Ø 43         IBS.430         IBL.420           Ø 43         IBS.430         IBL.420           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.470         IBL.470           Ø 48         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51 <td< td=""><td>Ø 25</td><td>IBS.250</td><td>IBL.250</td></td<>	Ø 25	IBS.250	IBL.250
Ø 28         IBS.280         IBL.280           Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.450         IBL.470           Ø 48         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.500           Ø 53 <td< td=""><td>Ø 26</td><td>IBS.260</td><td>IBL.260</td></td<>	Ø 26	IBS.260	IBL.260
Ø 29         IBS.290         IBL.290           Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.390           Ø 40         IBS.400         IBL.390           Ø 41         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.420         IBL.420           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.450         IBL.460           Ø 47         IBS.470         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.500           Ø 51         IBS.500         IBL.520           Ø 53 <td< td=""><td>Ø 27</td><td>IBS.270</td><td>IBL.270</td></td<>	Ø 27	IBS.270	IBL.270
Ø 30         IBS.300         IBL.300           Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.400         IBL.400           Ø 41         IBS.420         IBL.420           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.500           Ø 51         IBS.520         IBL.520           Ø 53 <t< td=""><td>Ø 28</td><td>IBS.280</td><td>IBL.280</td></t<>	Ø 28	IBS.280	IBL.280
Ø 31         IBS.310         IBL.310           Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.420           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.520           Ø 53         IBS.520         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55 <td< td=""><td>Ø 29</td><td>IBS.290</td><td>IBL.290</td></td<>	Ø 29	IBS.290	IBL.290
Ø 32         IBS.320         IBL.320           Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.430           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.500           Ø 51         IBS.520         IBL.530           Ø 53         IBS.530         IBL.540           Ø 55         IBS.550         IBL.560           Ø 56 <t< td=""><td>Ø 30</td><td>IBS.300</td><td>IBL.300</td></t<>	Ø 30	IBS.300	IBL.300
Ø 33         IBS.330         IBL.330           Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.400           Ø 41         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.430           Ø 44         IBS.450         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.560         IBL.560           Ø 56 <t< td=""><td>Ø 31</td><td>IBS.310</td><td>IBL.310</td></t<>	Ø 31	IBS.310	IBL.310
Ø 34         IBS.340         IBL.340           Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.450         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.500           Ø 51         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.560           Ø 56         IBS.570         IBL.560           Ø 57 <td< td=""><td>Ø 32</td><td>IBS.320</td><td>IBL.320</td></td<>	Ø 32	IBS.320	IBL.320
Ø 35         IBS.350         IBL.350           Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.450           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.540           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.560           Ø 56         IBS.570         IBL.560           Ø 57 <td< td=""><td>Ø 33</td><td>IBS.330</td><td>IBL.330</td></td<>	Ø 33	IBS.330	IBL.330
Ø 36         IBS.360         IBL.360           Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.590         IBL.590	Ø 34	IBS.340	IBL.340
Ø 37         IBS.370         IBL.370           Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.560           Ø 56         IBS.570         IBL.560           Ø 57         IBS.570         IBL.580           Ø 59         IBS.590         IBL.590	Ø 35	IBS.350	IBL.350
Ø 38         IBS.380         IBL.380           Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 51         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.560           Ø 56         IBS.570         IBL.560           Ø 57         IBS.570         IBL.580           Ø 59         IBS.590         IBL.590	Ø 36	IBS.360	IBL.360
Ø 39         IBS.390         IBL.390           Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.580           Ø 59         IBS.590         IBL.590	Ø 37	IBS.370	IBL.370
Ø 40         IBS.400         IBL.400           Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.510         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.580           Ø 59         IBS.590         IBL.590	Ø 38	IBS.380	IBL.380
Ø 41         IBS.410         IBL.410           Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.590         IBL.590	Ø 39	IBS.390	IBL.390
Ø 42         IBS.420         IBL.420           Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.490         IBL.500           Ø 51         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.590         IBL.590	Ø 40	IBS.400	IBL.400
Ø 43         IBS.430         IBL.430           Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.580           Ø 59         IBS.590         IBL.590	Ø 41	IBS.410	IBL.410
Ø 44         IBS.440         IBL.440           Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.500         IBL.500           Ø 50         IBS.500         IBL.510           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.580         IBL.580           Ø 59         IBS.590         IBL.590	Ø 42	IBS.420	IBL.420
Ø 45         IBS.450         IBL.450           Ø 46         IBS.460         IBL.460           Ø 47         IBS.470         IBL.470           Ø 48         IBS.480         IBL.480           Ø 49         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.580         IBL.580           Ø 59         IBS.590         IBL.590	Ø 43	IBS.430	IBL.430
Ø 46       IBS.460       IBL.460         Ø 47       IBS.470       IBL.470         Ø 48       IBS.480       IBL.480         Ø 49       IBS.490       IBL.490         Ø 50       IBS.500       IBL.500         Ø 51       IBS.510       IBL.510         Ø 52       IBS.520       IBL.520         Ø 53       IBS.530       IBL.530         Ø 54       IBS.540       IBL.540         Ø 55       IBS.550       IBL.550         Ø 56       IBS.560       IBL.560         Ø 57       IBS.570       IBL.570         Ø 58       IBS.580       IBL.580         Ø 59       IBS.590       IBL.590	Ø 44	IBS.440	IBL.440
Ø 47     IBS.470     IBL.470       Ø 48     IBS.480     IBL.480       Ø 49     IBS.490     IBL.490       Ø 50     IBS.500     IBL.500       Ø 51     IBS.510     IBL.510       Ø 52     IBS.520     IBL.520       Ø 53     IBS.530     IBL.530       Ø 54     IBS.540     IBL.540       Ø 55     IBS.550     IBL.550       Ø 56     IBS.560     IBL.560       Ø 57     IBS.570     IBL.570       Ø 58     IBS.580     IBL.580       Ø 59     IBS.590     IBL.590	Ø 45	IBS.450	IBL.450
Ø 48         IBS.480         IBL.480           Ø 49         IBS.490         IBL.490           Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.580         IBL.580           Ø 59         IBS.590         IBL.590	Ø 46	IBS.460	IBL.460
Ø 49     IBS.490     IBL.490       Ø 50     IBS.500     IBL.500       Ø 51     IBS.510     IBL.510       Ø 52     IBS.520     IBL.520       Ø 53     IBS.530     IBL.530       Ø 54     IBS.540     IBL.540       Ø 55     IBS.550     IBL.550       Ø 56     IBS.560     IBL.560       Ø 57     IBS.570     IBL.570       Ø 58     IBS.580     IBL.580       Ø 59     IBS.590     IBL.590	Ø 47	IBS.470	IBL.470
Ø 50         IBS.500         IBL.500           Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.580         IBL.580           Ø 59         IBS.590         IBL.590	Ø 48	IBS.480	IBL.480
Ø 51         IBS.510         IBL.510           Ø 52         IBS.520         IBL.520           Ø 53         IBS.530         IBL.530           Ø 54         IBS.540         IBL.540           Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.580         IBL.580           Ø 59         IBS.590         IBL.590	Ø 49	IBS.490	IBL.490
Ø 52     IBS.520     IBL.520       Ø 53     IBS.530     IBL.530       Ø 54     IBS.540     IBL.540       Ø 55     IBS.550     IBL.550       Ø 56     IBS.560     IBL.560       Ø 57     IBS.570     IBL.570       Ø 58     IBS.580     IBL.580       Ø 59     IBS.590     IBL.590	Ø 50	IBS.500	IBL.500
Ø 53       IBS.530       IBL.530         Ø 54       IBS.540       IBL.540         Ø 55       IBS.550       IBL.550         Ø 56       IBS.560       IBL.560         Ø 57       IBS.570       IBL.570         Ø 58       IBS.580       IBL.580         Ø 59       IBS.590       IBL.590	Ø 51	IBS.510	IBL.510
Ø 54     IBS.540     IBL.540       Ø 55     IBS.550     IBL.550       Ø 56     IBS.560     IBL.560       Ø 57     IBS.570     IBL.570       Ø 58     IBS.580     IBL.580       Ø 59     IBS.590     IBL.590	Ø 52	IBS.520	IBL.520
Ø 55         IBS.550         IBL.550           Ø 56         IBS.560         IBL.560           Ø 57         IBS.570         IBL.570           Ø 58         IBS.580         IBL.580           Ø 59         IBS.590         IBL.590	Ø 53	IBS.530	IBL.530
Ø 56     IBS.560     IBL.560       Ø 57     IBS.570     IBL.570       Ø 58     IBS.580     IBL.580       Ø 59     IBS.590     IBL.590	Ø 54	IBS.540	IBL.540
Ø 57     IBS.570     IBL.570       Ø 58     IBS.580     IBL.580       Ø 59     IBS.590     IBL.590	Ø 55	IBS.550	IBL.550
∅ 58     IBS.580     IBL.580       ∅ 59     IBS.590     IBL.590	Ø 56	IBS.560	IBL.560
Ø 59 IBS.590 IBL.590	Ø 57	IBS.570	IBL.570
	Ø 58	IBS.580	IBL.580
Ø 60 IBS.600 IBL.600	Ø 59	IBS.590	IBL.590
	Ø 60	IBS.600	IBL.600

Weldon         Weldon           DIA         Ø 7/16" - 2 5/16"           Code         Code           Ø 7/16"         IBS.7/16"         IBL.7/16"         IBY.7/16"           Ø 1/2"         IBS.1/2"         IBL.1/2"         IBY.1/2"           Ø 9/16"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 5/8"         IBS.5/8"         IBL.5/8"         IBY.5/8"           Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBL.13/16"         IBY.13/16"         IBY.13/16"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1 1/4"         IBS.1"         IBL.11"         IBY.1-1/16"           Ø 1 1/6"         IBS.1-1/8"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 3/16"         IBS.1-1/8"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 1/4"         IBS.1-5/16"         IBL.1-3/16"         IBY.1-1/16"           Ø 1 1/4"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 1/4"         IBS.1-7/4"         IBL.1-7/16"         IBY.1-3/8" <th></th> <th>DoC 1"</th> <th>DoC 2"</th> <th>DoC 3"</th>		DoC 1"	DoC 2"	DoC 3"
Code         Code           Ø 7/16"         IBS.7/16"         IBL.7/16"         IBY.7/16"           Ø 1/2"         IBS.1/2"         IBL.1/2"         IBY.1/2"           Ø 9/16"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 5/8"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.15/16"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 11/16"         IBS.1-1/16"         IBY.15/16"         IBY.1-1/16"           Ø 1 1/16"         IBS.1-1/16"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-1/2"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-5/16"         IBL.1-1/4"         IBY.1-3/16"           Ø 1 1/2"         IBS.1-5/16"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 1/2"         IBS.1-5/16"         IBL.1-1/2"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/16"		Weldon	Weldon	Weldon
Ø 7/16"         IBS.7/16"         IBL.7/16"         IBY.7/16"           Ø 1/2"         IBS.1/2"         IBL.1/2"         IBY.1/2"           Ø 9/16"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 9/16"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 5/8"         IBS.5/8"         IBL.5/8"         IBY.5/8"           Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBY.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.17/8"         IBY.13/16"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1 1/16"         IBS.1-1/16"         IBY.1         IBY.1           Ø 1 1/16"         IBS.1-1/16"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-7/16"         IBY.1-5/16"           Ø 1 1/2"         IBS.1-7/16"         IBL.1-1/2"         IBY.1-1/2"	DIA		Ø 7/16" - 2 5/16"	
Ø 1/2"         IBS.1/2"         IBL.1/2"         IBY.1/2"           Ø 9/16"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 5/8"         IBS.5/8"         IBL.5/8"         IBY.5/8"           Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.13/16"           Ø 15/16"         IBS.15/16"         IBY.15/16"         IBY.15/16"           Ø 15/16"         IBS.15/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 1/16"         IBS.1-1/16"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-5/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-3/4"         IBY.1-5/8"		Code	Code	Code
Ø 9/16"         IBS.9/16"         IBL.9/16"         IBY.9/16"           Ø 5/8"         IBS.5/8"         IBL.5/8"         IBY.5/8"           Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 13/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.13/16"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1"         IBS.15/16"         IBL.1-7/16"         IBY.15/16"           Ø 1 1/16"         IBS.1-1/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-5/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-5/16"           Ø 1 1/2"         IBS.1-7/16"         IBL.1-1/2"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-5/8"<	Ø 7/16"	IBS.7/16"	IBL.7/16"	IBY.7/16"
Ø 5/8"         IBS.5/8"         IBL.5/8"         IBY.5/8"           Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.7/8"           Ø 15/16"         IBS.15/16"         IBY.15/16"         IBY.15/16"           Ø 1"         IBS.1"         IBL.1"         IBY.15/16"           Ø 1 1/16"         IBS.1-1/16"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/16"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-9/16"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-13/16"         IBL.1-3/4"         IBY.1-5/8"	Ø 1/2"	IBS.1/2"	IBL.1/2"	IBY.1/2"
Ø 11/16"         IBS.11/16"         IBL.11/16"         IBY.11/16"           Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.15/16"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1"         IBS.1"         IBL.1"         IBY.1-1/16"           Ø 1 1/16"         IBS.1-1/16"         IBY.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/16"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 1/2"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-1/16"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-13/16"         IBL.1-3/4"         <	Ø 9/16"	IBS.9/16"	IBL.9/16"	IBY.9/16"
Ø 3/4"         IBS.3/4"         IBL.3/4"         IBY.3/4"           Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.7/8"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1"         IBS.1"         IBL.1"         IBY.1"           Ø 1 1/16"         IBS.1-1/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 3/16"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-3/16"         IBL.1-1/4"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 9/16"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-13/16"         IBL.1-13/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-	Ø 5/8"	IBS.5/8"	IBL.5/8"	IBY.5/8"
Ø 13/16"         IBS.13/16"         IBL.13/16"         IBY.13/16"           Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.7/8"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1"         IBS.1"         IBL.1"         IBY.1-1/16"           Ø 1 1/16"         IBS.1-1/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-3/16"         IBL.1-1/4"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-5/16"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 9/16"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-9/16"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-1/6"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/4"         IBS.1-13/16"         IBL.1-13/16"	Ø 11/16"	IBS.11/16"	IBL.11/16"	IBY.11/16"
Ø 7/8"         IBS.7/8"         IBL.7/8"         IBY.7/8"           Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1"         IBS.1"         IBL.1"         IBY.15/16"           Ø 1 1/16"         IBS.1-1/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBY.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-3/16"         IBL.1-1/4"         IBY.1-5/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-5/16"         IBL.1-3/8"         IBY.1-5/16"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-7/16"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 17/8"         IBS.1-13/16"         IBL.1-13/16"	Ø 3/4"	IBS.3/4"	IBL.3/4"	IBY.3/4"
Ø 15/16"         IBS.15/16"         IBL.15/16"         IBY.15/16"           Ø 1"         IBS.1"         IBL.1"         IBY.1"           Ø 1 1/16"         IBS.1-1/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-1/4"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-9/16"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-3/4"         IBY.1-3/4"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-13/16"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-15/16"         IBL.1-13/16	Ø 13/16"	IBS.13/16"	IBL.13/16"	IBY.13/16"
Ø 1"         IBS.1"         IBL.1"         IBY.1"           Ø 1 1/16"         IBS.1-1/16"         IBL.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-1/4"         IBL.1-1/4"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-5/16"           Ø 1 7/16"         IBS.1-3/8"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-5/8"         IBY.1-5/8"           Ø 1 13/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBL.1-17/8"         IBY.1-17/8"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-17	Ø 7/8"	IBS.7/8"	IBL.7/8"	IBY.7/8"
Ø 1 1/16"         IBS.1-1/16"         IBY.1-1/16"           Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-1/4"         IBL.1-1/4"         IBY.1-1/4"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-5/16"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBY.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 17/8"         IBS.1-15/16"         IBL.1-17/8"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY	Ø 15/16"	IBS.15/16"	IBL.15/16"	IBY.15/16"
Ø 1 1/8"         IBS.1-1/8"         IBL.1-1/8"         IBY.1-1/8"           Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-1/4"         IBL.1-1/4"         IBY.1-3/16"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-3/8"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-7/16"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-17/8"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"/16"         IBY.2-1/16"           Ø 2 1/16"         IBS.2-1/8"	Ø 1"	IBS.1"	IBL.1"	IBY.1"
Ø 1 3/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 1/4"         IBS.1-1/4"         IBL.1-1/4"         IBY.1-1/4"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-9/16"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-5/8"         IBY.1-5/8"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-3/4"         IBL.1-3/16"         IBY.1-3/4"           Ø 1 17/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-13/16"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2-1/16"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 3/16"         IBS.2-3/16"         IBL	Ø 1 1/16"	IBS.1-1/16"	IBL.1-1/16"	IBY.1-1/16"
Ø 1 1/4"         IBS.1-1/4"         IBL.1-1/4"         IBY.1-1/4"           Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-5/8"         IBY.1-1/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-13/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"         IBY.1-13/16"           Ø 1 15/16"         IBS.1-15/16"         IBY.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-1/8"         IBY.2-1/4"	Ø 1 1/8"	IBS.1-1/8"	IBL.1-1/8"	IBY.1-1/8"
Ø 1 5/16"         IBS.1-5/16"         IBL.1-5/16"         IBY.1-5/16"           Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBY.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-3/4"         IBL.1-3/16"         IBY.1-3/4"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-3/16"           Ø 1 15/16"         IBS.1-7/6"         IBL.1-7/8"         IBY.1-7/8"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-1/8"         IBY.2-1/4"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 3/16"	IBS.1-3/16"	IBL.1-3/16"	IBY.1-3/16"
Ø 1 3/8"         IBS.1-3/8"         IBL.1-3/8"         IBY.1-3/8"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-7/16"         IBY.1-7/16"           Ø 1 7/16"         IBS.1-7/16"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-3/16"         IBL.1-3/16"         IBY.1-3/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-13/16"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-1/4"	Ø 1 1/4"	IBS.1-1/4"	IBL.1-1/4"	IBY.1-1/4"
Ø 1 7/16"         IBS.1-7/16"         IBY.1-7/16"           Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-3/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBY.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 5/16"	IBS.1-5/16"	IBL.1-5/16"	IBY.1-5/16"
Ø 1 1/2"         IBS.1-1/2"         IBL.1-1/2"         IBY.1-1/2"           Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBY.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 3/8"	IBS.1-3/8"	IBL.1-3/8"	IBY.1-3/8"
Ø 1 9/16"         IBS.1-9/16"         IBL.1-9/16"         IBY.1-9/16"           Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBL.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 7/16"	IBS.1-7/16"	IBL.1-7/16"	IBY.1-7/16"
Ø 1 5/8"         IBS.1-5/8"         IBL.1-5/8"         IBY.1-5/8"           Ø 1 11/16"         IBS.1-11/16"         IBY.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBY.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 1/2"	IBS.1-1/2"	IBL.1-1/2"	IBY.1-1/2"
Ø 1 11/16"         IBS.1-11/16"         IBL.1-11/16"         IBY.1-11/16"           Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBY.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2-"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 9/16"	IBS.1-9/16"	IBL.1-9/16"	IBY.1-9/16"
Ø 1 3/4"         IBS.1-3/4"         IBL.1-3/4"         IBY.1-3/4"           Ø 1 13/16"         IBS.1-13/16"         IBL.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 5/8"	IBS.1-5/8"	IBL.1-5/8"	IBY.1-5/8"
Ø 1 13/16"         IBS.1-13/16"         IBY.1-13/16"           Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBY.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBY.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 11/16"	IBS.1-11/16"	IBL.1-11/16"	IBY.1-11/16"
Ø 1 7/8"         IBS.1-7/8"         IBL.1-7/8"         IBY.1-7/8"           Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 3/4"	IBS.1-3/4"	IBL.1-3/4"	IBY.1-3/4"
Ø 1 15/16"         IBS.1-15/16"         IBL.1-15/16"         IBY.1-15/16"           Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 13/16"	IBS.1-13/16"	IBL.1-13/16"	IBY.1-13/16"
Ø 2"         IBS.2"         IBL.2"         IBY.2"           Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBY.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 7/8"	IBS.1-7/8"	IBL.1-7/8"	IBY.1-7/8"
Ø 2 1/16"         IBS.2-1/16"         IBL.2-1/16"         IBY.2-1/16"           Ø 2 1/8"         IBS.2-1/8"         IBL.2-1/8"         IBY.2-1/8"           Ø 2 3/16"         IBS.2-3/16"         IBL.2-3/16"         IBY.2-3/16"           Ø 2 1/4"         IBS.2-1/4"         IBL.2-1/4"         IBY.2-1/4"	Ø 1 15/16"	IBS.1-15/16"	IBL.1-15/16"	IBY.1-15/16"
Ø 2 1/8"     IBS.2-1/8"     IBL.2-1/8"     IBY.2-1/8"       Ø 2 3/16"     IBS.2-3/16"     IBL.2-3/16"     IBY.2-3/16"       Ø 2 1/4"     IBS.2-1/4"     IBL.2-1/4"     IBY.2-1/4"	Ø 2"	IBS.2"	IBL.2"	IBY.2"
Ø 2 3/16"   IBS.2-3/16"   IBL.2-3/16"   IBY.2-3/16"   Ø 2 1/4"   IBS.2-1/4"   IBL.2-1/4"   IBY.2-1/4"	Ø 2 1/16"	IBS.2-1/16"	IBL.2-1/16"	IBY.2-1/16"
Ø 2 1/4" IBS.2-1/4" IBL.2-1/4" IBY.2-1/4"	Ø 2 1/8"	IBS.2-1/8"	IBL.2-1/8"	IBY.2-1/8"
	Ø 2 3/16"	IBS.2-3/16"	IBL.2-3/16"	IBY.2-3/16"
Ø 2 5/16"   IBS.2-5/16"   IBL.2-5/16"   IBY.2-5/16"	Ø 2 1/4"	IBS.2-1/4"	IBL.2-1/4"	IBY.2-1/4"
	Ø 2 5/16"	IBS.2-5/16"	IBL.2-5/16"	IBY.2-5/16"

#### Annular cutter

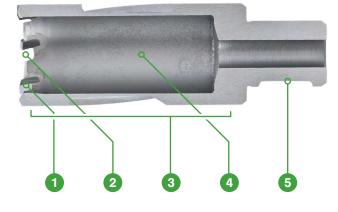
# **Tungsten Carbide Tipped**

Euroboor TCT (SANDVIK) annular cutters are equipped with a spiral flute which creates optimum chip removal and makes seizure virtually impossible. These annular cutters are used for example in hardened materials such as HARDOX steel, stainless steels and high

tensile strength steel such as railway tracks. Because of the above composition, and when used in a proper way, these cutters are less susceptible to breakage than standard High Speed Steel cutters, especially in larger diameters and lengths.

TCT mate	erial applica	ation	Optimal O	Good O	Possible								
Plastics GRP/CRP	Brass, Copper, Tin	Grey cast iron	Steel					Stainless	steel	Aluminium		Exotic materials, Inconnell, Nimonic, HARDOX,	Rails
			< 500N	< 750N	< 900N	< 1,100N	< 1,400N	< 900N	≤ 900N	< 10% Si	≤ 10% Si	Hastelloy	
	0	•	•	•	•	•	•	•	•	•	•	•	0

# TCT profile



6 7 8 9 10

- Extremely hard and durable tungsten carbide cutting teeth (SANDVIK) for the hardest of drilling tasks. Offset positioning for the lowest possible heat development.
- Optimised cutting angles for shortest drilling times and clearest cuts.
- Special alloy body for optimum 6. strength and durability.
- Tapered inside fitment prevents the cutter getting stuck.

  Guaranteed slug ejection with usage of the correct pilot pin.
- Precise shank fitment for maximum interchangeability and close tolerance drilling without run-out.
- Altering "continuous pre-cut" teeth geometry. Generates faster and more stable drilling performance and results in clear cuts of the highest precision and smooth, burri-free finishes. SANDVIK carbide tipped.
- Well-thought-out spiral flute angles for optimal chip removal.
- Specially designed blades for optimum stability and heatreduction.
- Number of flutes and teeth matched to the diameter of the cutter for the best tooth load and superior cutting speeds.
- Precision ground shanks for optimum fitment of the cutter itself in the tool holder and of pilot pin in the annular cutter. Increases safety, stability and accurate hole dimensions.

# тст

WelNit shank



Shank sizes

DIA Ø 12 - 60 mm: 19.05 mm (3/4")



DoC \_\_
Depth \_\_
of Cut
measured \_\_
inside \_\_
cutter

#### WelNit Ø 12 - 60 mm

C 200 mm
de
VU.220
VU.230
VU.240
VU.250
VU.260
VU.270
VU.280
VU.290
VU.300
VU.310
VU.320
VU.330
VU.340
VU.350
VU.360
VU.370
VU.380
VU.390
VU.400
VU.410
VU.420
VU.430
VU.440
VU.450
VU.460
VU.470
VU.480
VU.490
VU.500
VU.510
VU.520
VU.530
VU.540
VU.550
VU.560
VU.570
VU.580
VU.590
VU.600
VU. VU. VU. VU.

#### Weldon Ø 61 - 200 mm

	DoC 35 mm	DoC 55 mm	DoC 75 mm	DoC 100 mm	DoC 150 mm	DoC 200 mm
DIA	Code	Code	Code	Code	Code	Code
Ø 61	HMS.610	HML.610		HMX.610	HMW.610	HMV.610
Ø 62	HMS.620	HML.620		HMX.620	HMW.620	HMV.620
Ø 63	HMS.630	HML.630		HMX.630	HMW.630	HMV.630
Ø 64	HMS.640	HML.640		HMX.640	HMW.640	HMV.640
Ø 65	HMS.650	HML.650		HMX.650	HMW.650	HMV.650
Ø 66	HMS.660	HML.660		HMX.660	HMW.660	HMV.660
Ø 67	HMS.670	HML.670		HMX.670	HMW.670	HMV.670
Ø 68	HMS.680	HML.680		HMX.680	HMW.680	HMV.680
Ø 69	HMS.690	HML.690		HMX.690	HMW.690	HMV.690
Ø 70	HMS.700	HML.700		HMX.700	HMW.700	HMV.700
Ø 71	HMS.710	HML.710		HMX.710	HMW.710	HMV.710
Ø 72	HMS.720	HML.720		HMX.720	HMW.720	HMV.720
Ø 73	HMS.730	HML.730		HMX.730	HMW.730	HMV.730
Ø 74	HMS.740	HML.740		HMX.740	HMW.740	HMV.740
Ø 75	HMS.750	HML.750		HMX.750	HMW.750	HMV.750
Ø 76	HMS.760	HML.760		HMX.760	HMW.760	HMV.760
Ø 77	HMS.770	HML.770		HMX.770	HMW.770	HMV.770
Ø 78	HMS.780	HML.780		HMX.780	HMW.780	HMV.780
Ø 79	HMS.790	HML.790		HMX.790	HMW.790	HMV.790
Ø 80	HMS.800	HML.800		HMX.800	HMW.800	HMV.800
Ø 81	HMS.810	HML.810		HMX.810	HMW.810	HMV.810
Ø 82	HMS.820	HML.820		HMX.820	HMW.820	HMV.820
Ø 83	HMS.830	HML.830		HMX.830	HMW.830	HMV.830
Ø 84	HMS.840	HML.840		HMX.840	HMW.840	HMV.840
Ø 85	HMS.850	HML.850		HMX.850	HMW.850	HMV.850
Ø 86	HMS.860	HML.860		HMX.860	HMW.860	HMV.860
Ø 87	HMS.870	HML.870		HMX.870	HMW.870	HMV.870
Ø 88	HMS.880	HML.880		HMX.880	HMW.880	HMV.880
Ø 89	HMS.890	HML.890		HMX.890	HMW.890	HMV.890
Ø 90	HMS.900	HML.900		HMX.900	HMW.900	HMV.900
Ø 91	HMS.910	HML.910		HMX.910	HMW.910	HMV.910
Ø 92	HMS.920	HML.920		HMX.920	HMW.920	HMV.920
Ø 93	HMS.930	HML.930		HMX.930	HMW.930	HMV.930
Ø 94	HMS.940	HML.940		HMX.940	HMW.940	HMV.940
Ø 95	HMS.950	HML.950		HMX.950	HMW.950	HMV.950
Ø 96	HMS.960	HML.960		HMX.960	HMW.960	HMV.960
Ø 97	HMS.970	HML.970		HMX.970	HMW.970	HMV.970
Ø 98	HMS.980	HML.980		HMX.980	HMW.980	HMV.980
Ø 99	HMS.990	HML.990		HMX.990	HMW.990	HMV.990
Ø 100	HMS.1000	HML.1000		HMX.1000	HMW.1000	HMV.1000
Ø 101		HML.1010		HMX.1010	HMW.1010	HMV.1010
Ø 102		HML.1020		HMX.1020	HMW.1020	HMV.1020
Ø 103		HML.1030		HMX.1030	HMW.1030	HMV.1030
Ø 104		HML.1040		HMX.1040	HMW.1040	HMV.1040
Ø 105		HML.1050		HMX.1050	HMW.1050	HMV.1050
Ø 106		HML.1060		HMX.1060	HMW.1060	HMV.1060
Ø 107		HML.1070		HMX.1070	HMW.1070	HMV.1070
Ø 108		HML.1080		HMX.1080	HMW.1080	HMV.1080
Ø 109		HML.1090		HMX.1090	HMW.1090	HMV.1090
Ø 110		HML.1100		HMX.1100	HMW.1100	HMV.1100
Ø 111		HML.1110		HMX.1110	HMW1110	HMV.1110
Ø 112		HML 1130		HMX.1120	HMW1120	HMV.1120
Ø 113		HML.1130		HMX.1130	HMW.1130	HMV.1130
Ø 114		HML.1140		HMX.1140	HMW.1140	HMV.1140
Ø 115		HML.1150		HMX.1150	HMW.1150	HMV.1150
Ø 116		HML.1160		HMX.1160	HMW.1160	HMV.1160



Weldon shank



Shank sizes

DIA Ø 61 - 200 mm: 31.75 mm (1 1/4")



DoC

Depth
of Cut
measured
inside
cutter

# тст

Weldon shank



**Shank sizes**DIA Ø 61 - 200 mm:
31.75 mm (1 1/4")



Depth of Cut measured inside cutter

#### Weldon Ø 61 - 200 mm

	DoC 35 mm	DoC 55 mm	DoC 75 mm	DoC 100 mm	DoC 150 mm	DoC 200 mm
DIA	Code	Code	Code	Code	Code	Code
Ø 117		HML.1170		HMX.1170	HMW.1170	HMV.1170
Ø 118		HML.1180		HMX.1180	HMW.1180	HMV.1180
Ø 119		HML.1190		HMX.1190	HMW.1190	HMV.1190
Ø 120		HML.1200		HMX.1200	HMW.1200	HMV.1200
Ø 121		HML.1210		HMX.1210	HMW.1210	HMV.1210
Ø 122		HML.1220		HMX.1220	HMW.1220	HMV.1220
Ø 123		HML.1230		HMX.1230	HMW.1230	HMV.1230
Ø 124		HML.1240		HMX.1240	HMW.1240	HMV.1240
Ø 125		HML.1250		HMX.1250	HMW.1250	HMV.1250
Ø 126		HML.1260		HMX.1260	HMW.1260	HMV.1260
Ø 127		HML.1270		HMX.1270	HMW.1270	HMV.1270
Ø 128						
		HML.1280		HMX.1280	HMW.1280	HMV.1280
Ø 129		HML.1290		HMX.1290	HMW.1290	HMV.1290
Ø 130		HML.1300		HMX.1300	HMW.1300	HMV.1300
Ø 131		HML.1310		HMX.1310	HMW.1310	HMV.1310
Ø 132		HML.1320		HMX.1320	HMW.1320	HMV.1320
Ø 133		HML.1330		HMX.1330	HMW.1330	HMV.1330
Ø 134		HML.1340		HMX.1340	HMW.1340	HMV.1340
Ø 135		HML.1350		HMX.1350	HMW.1350	HMV.1350
Ø 136		HML.1360		HMX.1360	HMW.1360	HMV.1360
Ø 137		HML.1370		HMX.1370	HMW.1370	HMV.1370
Ø 138		HML.1380		HMX.1380	HMW.1380	HMV.1380
Ø 139		HML.1390		HMX.1390	HMW.1390	HMV.1390
Ø 140		HML.1400		HMX.1400	HMW.1400	HMV.1400
Ø 141		HML.1410		HMX.1410	HMW.1410	HMV.1410
Ø 142		HML.1420		HMX.1420	HMW.1420	HMV.1420
Ø 143		HML.1430		HMX.1430	HMW.1430	HMV.1430
Ø 144		HML.1440		HMX.1440	HMW.1440	HMV.1440
Ø 145		HML.1450		HMX.1450	HMW.1450	HMV.1450
Ø 146		HML.1460		HMX.1460	HMW.1460	HMV.1460
Ø 147		HML.1470		HMX.1470	HMW.1470	HMV.1470
Ø 148		HML.1480		HMX.1480	HMW.1480	HMV.1480
Ø 149		HML.1490		HMX.1490	HMW.1490	HMV.1490
Ø 150		HML.1500		HMX.1500	HMW.1500	HMV.1500
Ø 151		HML.1510		HMX.1510	HMW.1510	HMV.1510
Ø 152		HML.1520		HMX.1520	HMW.1520	HMV.1520
Ø 153		HML.1530		HMX.1530	HMW.1530	HMV.1530
Ø 154		HML.1540		HMX.1540	HMW.1540	HMV.1540
Ø 155		HML.1550		HMX.1550	HMW.1550	HMV.1550
Ø 156		HML.1560		HMX.1560	HMW.1560	HMV.1560
Ø 157		HML.1570		HMX.1570	HMW.1570	HMV.1570
Ø 158		HML.1580		HMX.1580	HMW.1580	HMV.1580
Ø 159		HML.1590		HMX.1590	HMW.1590	HMV.1590
Ø 160		HML.1600		HMX.1600	HMW.1600	HMV.1600
Ø 161		HML.1610		HMX.1610	HMW.1610	HMV.1610
Ø 162		HML.1620		HMX.1620	HMW.1620	HMV.1620
Ø 163		HML.1630		HMX.1630	HMW.1630	HMV.1630
Ø 164		HML.1640		HMX.1640	HMW.1640	HMV.1640
Ø 165		HML.1650		HMX.1650	HMW.1650	HMV.1650
Ø 166		HML.1660		HMX.1660	HMW.1660	HMV.1660
Ø 167		HML.1670		HMX.1670	HMW.1670	HMV.1670
Ø 168		HML.1680		HMX.1680	HMW.1680	HMV.1680
Ø 169		HML.1690		HMX.1690	HMW.1690	HMV.1690
Ø 170		HML.1700		HMX.1700	HMW.1700	HMV.1700
		LIMI 1710		LIMY 1710	LIMW 1710	LIMV/1710
Ø 171		HML.1710		HMX.1710	HMW.1710	HMV.1710

#### Weldon Ø 61 - 200 mm

	DoC 35 mm	DoC 55 mm	DoC 75 mm	DoC 100 mm	DoC 150 mm	DoC 200 mm
DIA	Code	Code	Code	Code	Code	Code
Ø 173		HML.1730		HMX.1730	HMW.1730	HMV.1730
Ø 174		HML.1740		HMX.1740	HMW.1740	HMV.1740
Ø 175		HML.1750		HMX.1750	HMW.1750	HMV.1750
Ø 176		HML.1760		HMX.1760	HMW.1760	HMV.1760
Ø 177		HML.1770		HMX.1770	HMW.1770	HMV.1770
Ø 178		HML.1780		HMX.1780	HMW1780	HMV.1780
Ø 179		HML.1790		HMX.1790	HMW.1790	HMV.1790
Ø 180		HML.1800		HMX.1800	HMW.1800	HMV.1800
Ø 181		HML.1810		HMX.1810	HMW.1810	HMV.1810
Ø 182		HML.1820		HMX.1820	HMW.1820	HMV.1820
Ø 183		HML.1830		HMX.1830	HMW.1830	HMV.1830
Ø 184		HML.1840		HMX.1840	HMW.1840	HMV.1840
Ø 185		HML.1850		HMX.1850	HMW.1850	HMV.1850
Ø 186		HML.1860		HMX.1860	HMW.1860	HMV.1860
Ø 187		HML.1870		HMX.1870	HMW.1870	HMV.1870
Ø 188		HML.1880		HMX.1880	HMW.1880	HMV.1880
Ø 189		HML.1890		HMX.1890	HMW.1890	HMV.1890
Ø 190		HML.1900		HMX.1900	HMW.1900	HMV.1900
Ø 191		HML.1910		HMX.1910	HMW.1910	HMV.1910
Ø 192		HML.1920		HMX.1920	HMW.1920	HMV.1920
Ø 193		HML.1930		HMX.1930	HMW.1930	HMV.1930
Ø 194		HML.1940		HMX.1940	HMW.1940	HMV.1940
Ø 195		HML.1950		HMX.1950	HMW.1950	HMV.1950
Ø 196		HML.1960		HMX.1960	HMW.1960	HMV.1960
Ø 197		HML.1970		HMX.1970	HMW.1970	HMV.1970
Ø 198		HML.1980		HMX.1980	HMW.1980	HMV.1980
Ø 199		HML.1990		HMX.1990	HMW.1990	HMV.1990
Ø 200		HML.2000		HMX.2000	HMW.2000	HMV.2000



Weldon shank



Shank sizes

DIA Ø 61 - 200 mm: 31.75 mm (1 1/4")



Depth of Cut measured inside



WelNit shank



Weldon shank



**Shank sizes**DIA Ø 7/16" - 2 5/16":

DIA Ø 7/16" - 2 5/16 3/4"

DIA Ø 2 3/8" - 8": 1 1/4"



#### WelNit Ø 7/16" - 2 5/16"

	DoC 1"	DoC 2"	DoC 3"	DoC 4"	DoC 6"	DoC 8"
DIA	Code	Code	Code	Code	Code	Code
Ø 7/16"	HMSU.7/16"	HMLU.7/16"	HMY.7/16"	HMX.7/16"		
Ø 1/2"	HMSU.1/2"	HMLU.1/2"	HMY.1/2"	HMX.1/2"		
Ø 9/16"	HMSU.9/16"	HMLU.9/16"	HMY.9/16"	HMX.9/16"		
Ø 5/8"	HMSU.5/8"	HMLU.5/8"	HMY.5/8"	HMX.5/8"		
Ø 11/16"	HMSU.11/16"	HMLU.11/16"	HMY.11/16"	HMX.11/16"		
Ø 3/4"	HMSU.3/4"	HMLU.3/4"	HMY.3/4"	HMX.3/4"		
Ø 13/16"	HMSU.13/16"	HMLU.13/16"	HMY.13/16"	HMX.13/16"		
Ø 7/8"	HMSU.7/8"	HMLU.7/8"	HMY.7/8"	HMX.7/8"	HMW.7/8"	HMV.7/8"
Ø 15/16"	HMSU.15/16"	HMLU.15/16"	HMY.15/16"	HMX.15/16"	HMW.15/16"	HMV.15/16"
Ø 1"	HMSU.1"	HMLU.1"	HMY.1"	HMX.1"	HMW.1"	HMV.1"
Ø 1 1/16"	HMSU.1-1/16"	HMLU.1-1/16"	HMY.1-1/16"	HMX.1-1/16"	HMW.1-1/16"	HMV.1-1/16"
Ø 1 1/8"	HMSU.1-1/8"	HMLU.1-1/8"	HMY.1-1/8"	HMX.1-1/8"	HMW.1-1/8"	HMV.1-1/8"
Ø 1 3/16"	HMSU.1-3/16"	HMLU.1-3/16"	HMY.1-3/16"	HMX.1-3/16"	HMW.1-3/16"	HMV.1-3/16"
Ø 1 1/4"	HMSU.1-1/4"	HMLU.1-1/4"	HMY.1-1/4"	HMX.1-1/4"	HMW.1-1/4"	HMV.1-1/4"
Ø 1 5/16"	HMSU.1-5/16"	HMLU.1-5/16"	HMY.1-5/16"	HMX.1-5/16"	HMW.1-5/16"	HMV.1-5/16"
Ø 1 3/8"	HMSU.1-3/8"	HMLU.1-3/8"	HMY.1-3/8"	HMX.1-3/8"	HMW.1-3/8"	HMV.1-3/8"
Ø 1 7/16"	HMSU.1-7/16"	HMLU.1-7/16"	HMY.1-7/16"	HMX.1-7/16"	HMW.1-7/16"	HMV.1-7/16"
Ø 1 1/2"	HMSU.1-1/2"	HMLU.1-1/2"	HMY.1-1/2"	HMX.1-1/2"	HMW.1-1/2"	HMV.1-1/2"
Ø 1 9/16"	HMSU.1-9/16"	HMLU.1-9/16"	HMY.1-9/16"	HMX.1-9/16"	HMW.1-9/16"	HMV.1-9/16"
Ø 1 5/8"	HMSU.1-5/8"	HMLU.1-5/8"	HMY.1-5/8"	HMX.1-5/8"	HMW.1-5/8"	HMV.1-5/8"
Ø 1 11/16"	HMSU.1-11/16"	HMLU.1-11/16"	HMY.1-11/16"	HMX.1-11/16"	HMW.1-11/16"	HMV.1-11/16"
Ø 1 3/4"	HMSU.1-3/4"	HMLU.1-3/4"	HMY.1-3/4"	HMX.1-3/4"	HMW.1-3/4"	HMV.1-3/4"
Ø 1 13/16"	HMSU.1-13/16"	HMLU.1-13/16"	HMY.1-13/16"	HMX.1-13/16"	HMW.1-13/16"	HMV.1-13/16"
Ø 1 7/8"	HMSU.1-7/8"	HMLU.1-7/8"	HMY.1-7/8"	HMX.1-7/8"	HMW.1-7/8"	HMV.1-7/8"
Ø 1 15/16"	HMSU.1-15/16"	HMLU.1-15/16"	HMY.1-15/16"	HMX.1-15/16"	HMW.1-15/16"	HMV.1-15/16"
Ø 2"	HMSU.2"	HMLU.2"	HMY.2"	HMX.2"	HMW.2"	HMV.2"
Ø 2 1/16"	HMSU.2-1/16"	HMLU.2-1/16"	HMY.2-1/16"	HMX.2-1/16"	HMW.2-1/16"	HMV.2-1/16"
Ø 2 1/8"	HMSU.2-1/8"	HMLU.2-1/8"	HMY.2-1/8"	HMX.2-1/8"	HMW.2-1/8"	HMV.2-1/8"
Ø 2 3/16"	HMSU.2-3/16"	HMLU.2-3/16"	HMY.2-3/16"	HMX.2-3/16"	HMW.2-3/16"	HMV.2-3/16"
Ø 2 1/4"	HMSU.2-1/4"	HMLU.2-1/4"	HMY.2-1/4"	HMX.2-1/4"	HMW.2-1/4"	HMV.2-1/4"
Ø 2 5/16"	HMSU. 2-5/16"	HMLU . 2-5/16"	HMY. 2-5/16"	HMX. 2-5/16"	HMW. 2-5/16"	HMV.2-5/16"

#### Weldon Ø 2 3/8" - 8"

	DoC 1"	DoC 2"	DoC 3"	DoC 4"	DoC 6"	DoC 8"
DIA	Code	Code	Code	Code	Code	Code
Ø 2 3/8"	HMS.2-3/8"	HML.2-3/8"	HMY.2-3/8"	HMX.2-3/8"	HMW.2-3/8"	HMV.2-3/8"
Ø 2 7/16"	HMS.2-7/16"	HML.2-7/16"	HMY.2-7/16"	HMX.2-7/16"	HMW.2-7/16"	HMV.2-7/16"
Ø 2 1/2"	HMS.2-1/2"	HML.2-1/2"	HMY.2-1/2"	HMX.2-1/2"	HMW.2-1/2"	HMV.2-1/2"
Ø 2 9/16"	HMS.2-9/16"	HML.2-9/16"	HMY.2-9/16"	HMX.2-9/16"	HMW.2-9/16"	HMV.2-9/16"
Ø 2 5/8"	HMS.2-5/8"	HML.2-5/8"	HMY.2-5/8"	HMX.2-5/8"	HMW.2-5/8"	HMV.2-5/8"
Ø 2 11/16"	HMS.2-11/16"	HML.2-11/16"	HMY.2-11/16"	HMX.2-11/16"	HMW.2-11/16"	HMV.2-11/16"
Ø 2 3/4"	HMS.2-3/4"	HML.2-3/4"	HMY.2-3/4"	HMX.2-3/4"	HMW.2-3/4"	HMV.2-3/4"
Ø 2 13/16"	HMS.2-13/16"	HML.2-13/16"	HMY.2-13/16"	HMX.2-13/16"	HMW.2-13/16"	HMV.2-13/16"
Ø 2 7/8"	HMS.2-7/8"	HML.2-7/8"	HMY.2-7/8"	HMX.2-7/8"	HMW.2-7/8"	HMV.2-7/8"
Ø 2 15/16"	HMS.2-15/16"	HML.2-15/16"	HMY.2-15/16"	HMX.2-15/16"	HMW.2-15/16"	HMV.2-15/16"
Ø 3"	HMS.3"	HML.3"	HMY.3"	HMX.3"	HMW.3"	HMV.3"
Ø 3 1/16"	HMS.3-1/16"	HML.3-1/16"		HMX.3-1/16"	HMW.3-1/16"	HMV.3-1/16"
Ø 3 1/8"	HMS.3-1/8"	HML.3-1/8"		HMX.3-1/8"	HMW.3-1/8"	HMV.3-1/8"
Ø 3 3/16"	HMS.3-3/16"	HML.3-3/16"		HMX.3-3/16"	HMW.3-3/16"	HMV.3-3/16"
Ø 3 1/4"	HMS.3-1/4"	HML.3-1/4"		HMX.3-1/4"	HMW.3-1/4"	HMV.3-1/4"
Ø 3 5/16"	HMS.3-5/16"	HML.3-5/16"		HMX.3-5/16"	HMW.3-5/16"	HMV.3-5/16"
Ø 3 3/8"	HMS.3-3/8"	HML.3-3/8"		HMX.3-3/8"	HMW.3-3/8"	HMV.3-3/8"
Ø 3 7/16"	HMS.3-7/16"	HML.3-7/16"		HMX.3-7/16"	HMW.3-7/16"	HMV.3-7/16"
Ø 3 1/2"	HMS.3-1/2"	HML.3-1/2"		HMX.3-1/2"	HMW.3-1/2"	HMV.3-1/2"
Ø 3 9/16"	HMS.3-9/16"	HML.3-9/16"		HMX.3-9/16"	HMW.3-9/16"	HMV.3-9/16"

#### Weldon Ø 2 3/8" - 8"

	DoC 1"	DoC 2"	DoC 3"	DoC 4"	DoC 6"	DoC 8"
DIA	Code	Code	Code	Code	Code	Code
Ø 3 5/8"	HMS.3-5/8"	HML.3-5/8"		HMX.3-5/8"	HMW.3-5/8"	HMV.3-5/8"
Ø 3 11/16"	HMS.3-11/16"	HML.3-11/16"		HMX.3-11/16"	HMW.3-11/16"	HMV.3-11/16"
Ø 3 3/4"	HMS.3-3/4"	HML.3-3/4"		HMX.3-3/4"	HMW.3-3/4"	HMV.3-3/4"
Ø 3 13/16"	HMS.3-13/16"	HML.3-13/16"		HMX.3-13/16"	HMW.3-13/16"	HMV.3-13/16"
Ø 3 7/8"	HMS.3-7/8"	HML.3-7/8"		HMX.3-7/8"	HMW.3-7/8"	HMV.3-7/8"
Ø 3 15/16"	HMS.3-15/16"	HML.3-15/16"		HMX.3-15/16"	HMW.3-15/16"	HMV.3-15/16"
Ø 4"	HMS.4"	HML.4"		HMX.4"	HMW.4"	HMV.4"
Ø 4 1/16"		HML.4-1/16"		HMX.4-1/16"	HMW.4-1/16"	HMV.4-1/16"
Ø 4 1/8"		HML.4-1/8"		HMX.4-1/8"	HMW.4-1/8"	HMV.4-1/8"
Ø 4 3/16"		HML.4-3/16"		HMX.4-3/16"	HMW.4-3/16"	HMV.4-3/16"
Ø 4 1/4"		HML.4-1/4"		HMX.4-1/4"	HMW.4-1/4"	HMV.4-1/4"
Ø 4 5/16"		HML.4-5/16"		HMX.4-5/16"	HMW.4-5/16"	HMV.4-5/16"
Ø 4 3/8"		HML.4-3/8"		HMX.4-3/8"	HMW.4-3/8"	HMV.4-3/8"
Ø 4 7/16"		HML.4-7/16"		HMX.4-7/16"	HMW.4-7/16"	HMV.4-7/16"
Ø 4 1/2"		HML.4-1/2"		HMX.4-1/2"	HMW.4-1/2"	HMV.4-1/2"
Ø 4 9/16"		HML.4-9/16"		HMX.4-9/16"	HMW.4-9/16"	HMV.4-9/16"
Ø 4 5/8"		HML.4-5/8"		HMX.4-5/8"	HMW.4-5/8"	HMV.4-5/8"
Ø 4 11/16"		HML.4-11/16"		HMX.4-11/16"	HMW.4-11/16"	HMV.4-11/16"
Ø 4 3/4"		HML.4-3/4"		HMX.4-3/4"	HMW.4-3/4"	HMV.4-3/4"
Ø 4 13/16"		HML.4-13/16"		HMX.4-13/16"	HMW.4-13/16"	HMV.4-13/16"
Ø 4 7/8"		HML.4-7/8"		HMX.4-7/8"	HMW.4-7/8"	HMV.4-7/8"
Ø 4 15/16"		HML.4-15/16"		HMX.4-15/16"	HMW.4-15/16"	HMV.4-15/16"
Ø 5"		HML.5"		HMX.5"	HMW.5"	HMV.5"
Ø 5 1/16"		HML.5-1/16"		HMX.5-1/16"	HMW.5-1/16"	HMV.5-1/16"
Ø 5 1/8"		HML.5-1/8"		HMX.5-1/8"	HMW.5-1/8"	HMV.5-1/8"
Ø 5 3/16"		HML.5-3/16"		HMX.5-3/16"	HMW.5-3/16"	HMV.5-3/16"
Ø 5 1/4"		HML.5-1/4"		HMX.5-1/4"	HMW.5-1/4"	HMV.5-1/4"
Ø 5 5/16"		HML.5-5/16"		HMX.5-5/16"	HMW.5-5/16"	HMV.5-5/16"
Ø 5 3/8"		HML.5-3/8"		HMX.5-3/8"	HMW.5-3/8"	HMV.5-3/8"
Ø 5 7/16"		HML.5-7/16"		HMX.5-7/16"	HMW.5-7/16"	HMV.5-7/16"
Ø 5 1/2"		HML.5-1/2"		HMX.5-1/2"	HMW.5-1/2"	HMV.5-1/2"
Ø 5 9/16"		HML.5-9/16"		HMX.5-9/16"	HMW.5-9/16"	HMV.5-9/16"
Ø 5 5/8"		HML.5-5/8"		HMX.5-5/8"	HMW.5-5/8"	HMV.5-5/8"
Ø 5 11/16"		HML.5-11/16"		HMX.5-11/16"	HMW.5-11/16"	HMV.5-11/16"
Ø 5 3/4"		HML.5-3/4"		HMX.5-3/4"	HMW.5-3/4"	HMV.5-3/4"
Ø 5 13/16"		HML.5-13/16"		HMX.5-13/16"	HMW.5-13/16"	HMV.5-13/16"
Ø 5 7/8"		HML.5-7/8"		HMX.5-7/8"	HMW.5-7/8"	HMV.5-7/8"
Ø 5 15/16"		HML.5-15/16"		HMX.5-15/16"	HMW.5-15/16"	HMV.5-15/16"
Ø 6"		HML.6"		HMX.6"	HMW.6"	HMV.6"
Ø 6 1/16"		HML.6-1/16"		HMX.6-1/16"	HMW.6-1/16"	HMV.6-1/16"
Ø 6 1/8"		HML.6-1/8"		HMX.6-1/8"	HMW.6-1/8"	HMV.6-1/8"
Ø 6 3/16"		HML.6-3/16"		HMX.6-3/16"	HMW.6-3/16"	HMV.6-3/16"
Ø 6 1/4"		HML.6-1/4"		HMX.6-1/4"	HMW.6-1/4"	HMV.6-1/4"
Ø 6 5/16"		HML.6-5/16"		HMX.6-5/16"	HMW.6-5/16"	HMV.6-5/16"
Ø 6 3/8"		HML.6-3/8"		HMX.6-3/8"	HMW.6-3/8"	HMV.6-3/8"
Ø 6 7/16"		HML.6-7/16"		HMX.6-7/16"	HMW.6-7/16"	HMV.6-7/16"
Ø 6 1/2"		HML.6-1/2"		HMX.6-1/2"	HMW.6-1/2"	HMV.6-1/2"
Ø 6 9/16"		HML.6-9/16"		HMX.6-9/16"	HMW.6-9/16"	HMV.6-9/16"
Ø 6 5/8"		HML.6-5/8"		HMX.6-5/8"	HMW.6-5/8"	HMV.6-5/8"
Ø 6 11/16"		HML.6-11/16"		HMX.6-11/16"	HMW.6-11/16"	HMV.6-11/16"
Ø 6 3/4"		HML.6-3/4"		HMX.6-3/4"	HMW.6-3/4"	HMV.6-3/4"
Ø 6 13/16"		HML.6-13/16"		HMX.6-13/16"	HMW.6-13/16"	HMV.6-13/16"
Ø 6 7/8"		HML.6-7/8"		HMX.6-7/8"	HMW.6-7/8"	HMV.6-7/8"
Ø 6 15/16"		HML.6-15/16"		HMX.6-15/16"	HMW.6-15/16"	HMV.6-15/16"
Ø 7"		HML.7"		HMX.7"	HMW.7"	HMV.7"
Ø 7 1/16"		HML.7-1/16"		HMX.7-1/16"	HMW.7-1/16"	HMV.7-1/16"



Weldon shank



Shank sizes

DIA Ø 2 3/8" - 8": 1 1/4"



DoC Depth of Cut measured inside cutter



Weldon shank



**Shank sizes**DIA Ø 2 3/8" - 8":
1 1/4"



DoC Depth of Cut measured inside cutter

#### Weldon Ø 2 3/8" - 8"

	DoC 1"	DoC 2"	DoC 3"	DoC 4"	DoC 6"	DoC 8"
DIA	Code	Code	Code	Code	Code	Code
Ø 7 1/8"		HML.7-1/8"		HMX.7-1/8"	HMW.7-1/8"	HMV.7-1/8"
Ø 7 3/16"		HML.7-3/16"		HMX.7-3/16"	HMW.7-3/16"	HMV.7-3/16"
Ø 7 1/4"		HML.7-1/4"		HMX.7-1/4"	HMW.7-1/4"	HMV.7-1/4"
Ø 7 5/16"		HML.7-5/16"		HMX.7-5/16"	HMW.7-5/16"	HMV.7-5/16"
Ø 7 3/8"		HML.7-3/8"		HMX.7-3/8"	HMW.7-3/8"	HMV.7-3/8"
Ø 7 7/16"		HML.7-7/16"		HMX.7-7/16"	HMW.7-7/16"	HMV.7-7/16"
Ø 7 1/2"		HML.7-1/2"		HMX.7-1/2"	HMW.7-1/2"	HMV.7-1/2"
Ø 7 9/16"		HML.7-9/16"		HMX.7-9/16"	HMW.7-9/16"	HMV.7-9/16"
Ø 7 5/8"		HML.7-5/8"		HMX.7-5/8"	HMW.7-5/8"	HMV.7-5/8"
Ø 7 11/16"		HML.7-11/16"		HMX.7-11/16"	HMW.7-11/16"	HMV.7-11/16"
Ø 7 3/4"		HML.7-3/4"		HMX.7-3/4"	HMW.7-3/4"	HMV.7-3/4"
Ø 7 13/16"		HML.7-13/16"		HMX.7-13/16"	HMW.7-13/16"	HMV.7-13/16"
Ø 7 7/8"		HML.7-7/8"		HMX.7-7/8"	HMW.7-7/8"	HMV.7-7/8"
Ø 7 15/16"		HML.7-15/16"		HMX.7-15/16"	HMW.7-15/16"	HMV.7-15/16"
Ø 8"		HML.8"		HMX.8"	HMW.8"	HMV.8"

### 6 piece cutter sets



# Set TCT metric

#### DoC 35 mm

- 6 piece annular cutter set
- Cutter sizes Ø 12, 14, 16, 18, 20, 22 mm
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT

# Set TCT imperial

#### DoC 55 mm

- 6 piece annular cutter set
- Cutter sizes Ø 12, 14, 16, 18, 20, 22 mm
- Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/L

### 10 piece cutter sets



#### DoC 35 mm

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT/10S-M1

#### DoC 1"

- 10 piece annular cutter set
- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT/10S-I1

#### **DoC 1"**

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT/10S-I2



#### DoC 55 mm

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/10L-M1

#### **DoC 2"**

- 10 piece annular cutter set
- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/10L-I1

#### DoC 2"

- 10 piece annular cutter set
- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/10L-I2

#### Annular cutter

# Tungsten Carbide Tipped Rail

Euroboor TCT Rail cutters are specifically designed to pierce through the toughest rail grades with the greatest of ease. The super micrograin (SANDVIK) tungsten carbide tips contain optimised cutting angles and ensure vigorous and smooth cutting performance. The cutter body is specially engineered to provide maximum stability and

support to cope with the extremely high-torques generated in the cutting process. The design of the specific flutes has been based on keeping a horizontal drilling position and the type of chips from high-tensile strength steel in mind, resulting in optimal chip removal.



| DoC 25 mm \*



Shank sizes

DIA Ø 12 - 36 mm:

19.05 mm (3/4")

DoC

Depth of Cut measured inside cutter

	DoC 25 mm	DoC 35 mm *	
	Weldon	Weldon	
DIA	Ø 17	Ø 17 - 36 mm	
	Code	Code	
Ø 17	TRCS.170S	TRCS.170	
Ø 18	TRCS.180S	TRCS.180	
Ø 19	TRCS.190S	TRCS.190	
Ø 20	TRCS.200S	TRCS.200	
Ø 21	TRCS.210S	TRCS.210	
Ø 22	TRCS.220S	TRCS.220	
Ø 23	TRCS.230S	TRCS.230	
Ø 24	TRCS.240S	TRCS.240	
Ø 25	TRCS.250S	TRCS.250	
Ø 26	TRCS.260S	TRCS.260	
Ø 27	TRCS.270S	TRCS.270	
Ø 28	TRCS.280S	TRCS.280	
Ø 29	TRCS.290S	TRCS.290	
Ø 30	TRCS.300S	TRCS.300	
Ø 31	TRCS.310S	TRCS.310	
Ø 32	TRCS.320S	TRCS.320	
Ø 33	TRCS.330S	TRCS.330	
Ø 34	TRCS.340S	TRCS.340	
Ø 35	TRCS.350S	TRCS.350	
Ø 36	TRCS.360S	TRCS.360	

DoC 25 mm

\*availability on request

# ERM.100/3 Resharpening machine



Watch our machines in action on: www.youtube.com/euroboorbv



Technical data	
Dimensions (I x w x h)	480 x 270 x 300 mm
Weight	28 kg
Motor power	250 W
Noise emission	< 70 dBa
Grinding disk	Ø 125 mm
Wheel bore	Ø 25 mm
Shaft bore	19.05 mm Weldon
Speed (no load)	2,800 rpm
Voltage	110 - 120 V / 60 Hz
Voltage	220 - 240 V / 50 - 60 Hz

#### **Benefits**

- Resharpens HSS cutters from Ø 12 44 mm in cutting depths of 25 55 mm
- Easy angle adjustment; simple alignment to original geometry
- Laser guided cutter alignment ensures correct positioning of cutting edge to the wheel
- Motor positioning
- Including CBN\* grinding wheel
- \* CBN = Cubic Borid Nitride



# Accessory ERM.100/3

#### Standard supply

CBN\* Grinding wheel (Resharping) For HSS

Index plate T4/T8 & T5/T10

ERM3.0001

ERM3.0009

Index plate T6 & T7
ERM3.0008

Index plate T9
ERM3.0010



Motor adjustment



the cutter sharpening

blade

Laser guidance





Pilot pins are essential for the use of annular cutters, as they provide the following practical uses:

- Centration of cutter
- Control of oil flow
- Slug ejection

As plain as a pilot pin may look, all of these uses require highprecision and extremely low tolerances – just to make sure the centre is exactly the centre, oil flow starts and stops when you need it to, and the slug does not get stuck inside the cutter.

We offer a wide range of pilot pins that match the lengths, diameters and characteristics of our various annular cutters with exactly the required precision to enhance your drilling job in the best way possible.

#### <sup>1</sup>Extended pilot pin

Specifically for use with long cutters and drilling in very thick workpieces. Makes it possible to continue drilling without midprocess replacement. Suitable for use with longer cutters as from 75 mm (3").

#### <sup>2</sup>two-piece pilot pin





Place pilot pin through the shank, and attach extension through the bottom inside of the cutter.

#### Overview

Code	Length pin	Diameter pin
IBC.70	77 mm (3")	6.35 mm (1/4")
IBC.70/2	77 mm (3")	6.35 mm (1/4")
IBC.75	90 mm (3 9/16")	6.35 mm (1/4")
IBC.80	103 mm (4 1/16")	8 mm (5/16")
IBC.85	90 mm (3 9/16")	8 mm (5/16")
IBC.90	102 mm (4")	6.35 mm (1/4")
IBC.100	122 mm (4 13/16")	8 mm (5/16")
IBC.110	159 mm (6 1/4")	6.35 mm (1/4")
IBC.120	120 mm (4 3/4")	6.35 mm (1/4")
IBC.130	165 mm (6 1/2")	8 mm (5/16")
IBC.140	150 mm (5 15/16")	8 mm (5/16")
IBC.150	252 mm (9 15/16")	8 mm (5/16")
IBC.160	201 mm (7 15/16")	8 mm (5/16")

Code	Length pin	Diameter pin
IBC.K25 <sup>1</sup>	127 mm (5")	6.35 mm (1/4")
IBC.K50 <sup>1</sup>	155 mm (6 1/8")	6.35 mm (1/4")
IBC.K75 <sup>1</sup>	177 mm (7")	6.35 mm (1/4")
IBC.K100 <sup>1</sup>	204 mm (8")	6.35 mm (1/4")
IBC.K110 <sup>1</sup>	159 mm (6 1/4")	6.35 mm (1/4")
IBC.2P-130 <sup>2</sup>	130 mm (5 1/8")	8 mm (5/16")
IBC.2P-144 <sup>2</sup>	145 mm (5 11/16")	8 mm (5/16")
IBC.157 <sup>2</sup>	159 mm (6 1/4")	8 mm (5/16")
IBC.2P-168 <sup>2</sup>	170 mm (6 11/16")	8 mm (5/16")
IBC.2P-205 <sup>2</sup>	206 mm (8 1/16")	8 mm (5/16")
IBC.2P-256 <sup>2</sup>	258 mm (10 3/16")	8 mm (5/16")

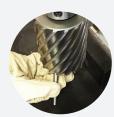
IBC.157







Start drilling. Stop at approx. 50 mm depth.





Remove the extension.

Commence drilling until slug ejection.

#### For our IBC.70 and IBC.90 pilot pins we also offer sets:

3 x IBC.70

3 x IBC.90

IBC.70-SET

IBC.90-SET

# Pilot pin features

#### Precise positioning

 Whilst having a perfect fit the Euroboor pilot pin is your guidance to centre the cutter.



Material

#### Oil flow regulation

- In standstill position with the cutter above the workpiece, the pilot pin prevents the oil from flowing.
- When moving down the cutter with the pilot pin onto the workpiece to commence drilling, the pilot pin is pushed up into the arbor and permits the oil to flow into the cutter for direct cooling and lubricating.



#### Slug ejection

- When the cutter is through the material, the pilot pin pushes the slug out of the workpiece by means of the strong spring inside the arbor.
- Consequently the oil flow is automatically cut off.



# Pilot pin recommendations

#### HSS metric - 30 mm

HCS (DoC 30 mm)		
Ø 12 - 60 mm	Ø 61 - 100 mm	
IBC.70 (6.35 x 77 mm)	IBC.80 (8.00 x 103 mm)	
HCSU (DoC 30 mm)		
Ø 12 - 60 mm		
IBC.70 (6.35 x 77 mm)		

#### HSS metric - 55 mm

HCL (DoC 55 mm)	
Ø 12 - 60 mm	Ø 61 - 100 mm
IBC.90 (6.35 x 102 mm)	IBC.100 (8.00 x 122 mm)
	IBC.2P-130 (8.00 x 130 mm)
HCLU (DoC 55 mm)	
Ø 12 - 60 mm	
IBC.90 (6.35 x 102 mm)	

#### HSS metric - 75 & 100 mm

HCY (DoC 75 mm)	HCX (DoC 100 mm)	
Ø 14 - 50 mm	Ø 18 - 50 mm	
IBC.K25 (6.35 x 127 mm)	IBC.K50 (6.35 x 155 mm)	

#### HSS imperial - 1"

HCS (DoC 1")	
Ø 7/16" - 2 5/16"	Ø 2 3/8" - 4"
IBC.70 (6.35 x 77 mm)	IBC.80 (8.00 x 103 mm)

#### HSS imperial - 2"

HCL (DoC 2")	
Ø 7/16" - 2 5/16"	Ø 2 3/8" - 4"
IBC.90 (6.35 x 102 mm)	IBC.100 (8.00 x 122 mm)
	IBC.2P-130 (8.00 x 130 mm)
HCLU (DoC 2")	
Ø 7/16" - 2 5/16"	
IBC.90 (6.35 x 102 mm)	

#### HSS Stack metric - 55 & 75 mm

HCPL (DoC 55 mm)	HCPY (DoC 75 mm)
Ø 18 - 32 mm	Ø 18 - 32 mm
IBC.90 (6.35 x 102 mm)	IBC.K25 (6.35 x 127 mm)

#### HSS Stack imperial - 2" & 3"

HCPL (DoC 2")	HCPY (DoC 3")
Ø 11/16" - 1 1/4"	Ø 11/16" - 1 1/4"
IBC.90 (6.35 x 102 mm)	IBC.K25 (6.35 x 127 mm)

#### HSS-Cobalt metric - 30 mm

IBS (DoC 30mm)	
Ø 12 - 60 mm	
IBC.70 (6.35 x 77 mm)	

#### HSS-Cobalt metric - 55 mm

IBL (DoC 55 mm)	
Ø 12 - 60 mm	
IBC.90 (6.35 x 102 mm)	

#### HSS-Cobalt imperial - 1"

IBS (DoC 1")	
Ø 7/16" - 2 5/16"	
IBC.70 (6.35 x 77 mm)	

#### HSS-Cobalt imperial - 2"

IBL (DoC 2")		
Ø 7/16" - 2 5/16"		
IBC.90 (6.35 x 102 mm)		

#### HSS-Cobalt imperial - 3"

IBY (DoC 3")		
Ø 7/16" - 2 5/16"		
IBC.K25 (6.35 x 127 mm)		



#### TCT metric - 35 mm

HMS (DoC 35 mm)	
Ø 12 - 17 mm	Ø 18 - 100 mm
IBC.75 (6.35 x 90 mm)	IBC.80 (8.00 x 103 mm)
HMSU (DoC 35 mm)	
Ø 12 - 17 mm	Ø 18 - 60 mm
IBC.75 (6.35 x 90 mm)	IBC.80 (8.00 x 103 mm)

#### TCT metric - 55 mm

HML (DoC 55 mm)	
Ø 12 - 17 mm	Ø 61 - 200 mm
IBC.90 (6.35 x 102 mm)	IBC.100 (8.00 x 122 mm)
Ø 18 - 60 mm	IBC.2P-144 (8.00 x 145 mm)
IBC.80 (8.00 x 103 mm)	
HMLU (DoC 55 mm)	
Ø 12 - 17 mm	Ø 18 - 60 mm
IBC.90 (6.35 x 102 mm)	IBC.80 (8.00 x 103 mm)

#### TCT metric - 75 & 100 mm

HMY (DoC 75 mm)	HMX (DoC 100 mm)
Ø 12 - 17 mm	Ø 12 - 17 mm
IBC.K25 (6.35 x 127 mm)	IBC.110 (6.35 x 159 mm)
Ø 18 - 50 mm	Ø 18 - 200 mm
IBC.140 (8.00 x 150 mm)	IBC.130 (8.00 x 165 mm)
IBC.157 (8.00 x 159 mm)	IBC.2P-168 (8.00 x 170 mm)

#### TCT metric - 150 & 200 mm

HMW (DoC 150 mm)	HMV (DoC 200 mm)
Ø 22 - 200 mm	Ø 22 - 200 mm
IBC.160 (8.00 x 201 mm)	IBC.150 (8.00 x 252 mm)
IBC.2P-205 (8.00 x 206 mm)	IBC.2P-256 (8.00 x 258 mm)

#### TCT imperial - 1"

HMS (DoC 1")		
Ø 7/16" - 11/16"	3/4" - 4"	
IBC.75 (6.35 x 90 mm)	IBC.80 (8.00 x 103 mm)	
HMSU (DoC 1")		
Ø 7/16" - 11/16"	Ø 3/4" - 2 5/16"	
IBC.75 (6.35 x 90 mm)	IBC.80 (8.00 x 103 mm)	

#### TCT imperial - 2"

HML (DoC 2")			
Ø 7/16" - 11/16"	Ø 2 3/8" - 8"		
IBC.90 (6.35 x 102 mm)	IBC.100 (8.00 x 122 mm)		
3/4" - 2 5/16"	IBC.2P-144 (8.00 x 145 mm)		
IBC.80 (8.00 x 103 mm)			
HMLU (DoC 2")			
7/16" - 11/16"			
IBC.90 (6.35 x 102 mm)			
3/4" - 2 15/16"			

#### TCT imperial - 3" & 4"

IBC.80 (8.00 x 103 mm)

HMY (DoC 3")	HMX (DoC 4")
Ø 7/16" - 11/16"	Ø 7/16" - 11/16"
IBC.K25 (6.35 x 127 mm)	IBC.110 (6.35 x 159 mm)
Ø 3/4"- 3"	Ø 3/4" - 8"
IBC.140 (8.00 x 150 mm)	IBC.130 (8.00 x 165 mm)
IBC.157 (8.00 x 159 mm)	IBC.2P-168 (8.00 x 170 mm)

#### TCT imperial - 6" & 8"

HMW (DoC 6")	HMV (DoC 8")
Ø 7/8" - 8"	Ø 7/8" - 8"
IBC.160 (8.00 x 201 mm)	IBC.150 (8.00 x 252 mm)
IBC.2P-205 (8.00 x 206 mm)	IBC.2P-256 (8.00 x 258 mm)

#### TCT Rail metric - 25 & 35 mm

TRCS (DoC 25 mm)	TRCS (DoC 35 mm)
Ø 17 - 36 mm	Ø 17 - 36 mm
IBC.70 (6.35 x 77 mm)	IBC.75 (6.35 x 90 mm)

#### Hole Saw

# Tungsten Carbide Tipped Hole Saw



Twist drills come in different materials and sizes, but above a certain diameter size it's no longer possible to drill with the twist drill. The amount of material to be cut would be too large and the drilling process would take extremely long. That's where the hole saws come in! With our multi-purpose TCT Hole saws you can drill holes from 11 mm up to 50 mm with portable power tools and stationary machines, without using extreme force or power. As the name suggests, the hole saw is hollow in the middle and only the cutting edges cut the material. This saves a lot of time and energy. The great thing about our hole saws is that they are very durable because they are Tungsten carbide tipped. Compared to bimetal hole saws they have a 10 times longer lifespan.

The hole saws are equipped with a pilot drill and ejector spring. The pilot drill allows simple centering and clean guidance in the material. With the ejector spring, the cut material is easily ejected from the hole saw. The safety stopper protects the workpiece (also a hex key is included for fixing the pilot drill).

- Material thickness for hand drills: max. 6 mm (1/4")
- Recommended hole diameter for hand drills: max 25 mm (1")
- Material thickness for portable magnetic drilling machines: max. 27 mm (1 1/16")
- · Parallel shank with 3 flats Fits all common drill chucks

Diameter	Code
11	THS.110
12	THS.120
13	THS.130
14	THS.140
15	THS.150
16	THS.160
17	THS.170
18	THS.180
19	THS.190
20	THS.200
21	THS.210
22	THS.220
23	THS.230
24	THS.240
25	THS.250
26	THS.260
27	THS.270
28	THS.280
29	THS.290
30	THS.300
31	THS.310
32	THS.320

Diameter	Code
33	THS.330
34	THS.340
35	THS.350
36	THS.360
37	THS.370
38	THS.380
39	THS.390
40	THS.400
41	THS.410
42	THS.420
43	THS.430
44	THS.440
45	THS.450
46	THS.460
47	THS.470
48	THS.480
49	THS.490
50	THS.500
7/16"	THS.7/16"
1/2"	THS.1/2"
9/16"	THS.9/16"
5/8"	THS.5/8"

Diameter	Code
11/16"	THS.11/16"
3/4"	THS.3/4"
13/16"	THS.13/16"
7/8"	THS.7/8"
15/16"	THS.15/16"
1"	THS.1"
1-1/16"	THS.1-1/16"
1-1/8"	THS.1-1/8"
1-3/16"	THS.1-3/16"
1-1/4"	THS.1-1/4"
1-5/16"	THS.1-5/16"
1-3/8"	THS.1-3/8"
1-7/16"	THS.1-7/16"
1-1/2"	THS.1-1/2"
1-9/16"	THS.1-9/16"
1-5/8"	THS.1-5/8"
1-11/16"	THS.1-11/16"
1-3/4"	THS.1-3/4"
1-13/16"	THS.1-13/16"
1-7/8"	THS.1-7/8"
1-15/16"	THS.1-15/16"
2"	THS.2"

#### Benefits of the TCT hole saw

- · Fits in your standard drilling machine
- "Tapered point" twist drill
- 3 mm optimized wall thickness
- 13 mm 3-flat shank
- 27 mm Depth of Cut
- More cutting teeth



Watch our machines in action on: www.youtube.com/euroboorby





#### Specifications

Max. material thickness for drilling in:

- Steel with bench drill: approximately 20 mm (13/16")
- Stainless steel with bench drill: approximately 10 mm (3/8")
- Aluminium with bench drill: approximately 20 mm (13/16")

#### TCT Hole Saw

- up to Ø 18 mm (11/16"): 10 mm (3/8") shank
- From Ø 19 mm (3/4") and up: 13 mm (1/2") shank
- Max. depth of cut: 27 mm (1 1/16")
- Wall thickness: 3 mm (1/8")

#### 6 piece TCT hole saw kit

- TCT Hole Saw size Ø 12, 14, 16, 18, 20, 22 mm
- HSS-M2 twist drill x6
- Springs x6
- Hex key

#### THS.KIT/6-M

### Weldon twist drills

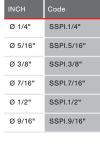
HSS 19.05 mm (3/4") Weldon shank.  $135^{\circ}$  split point. Available in 30 mm, 50 mm length, 1" and 2" (DoC). Machined from one solid blank (no weak spots caused by inferior material or welds).

DoC 30 mm DIA Ø 6 - 14 mm DoC 1" DIA Ø 1/4" - 9/16"

ММ	Code
Ø 6	SSPI.06
Ø 7	SSPI.07
Ø 8	SSPI.08
Ø 9	SSPI.09
Ø 10	SSPI.10
Ø 11	SSPI.11
Ø 12	SSPI.12
Ø 13	SSPI.13

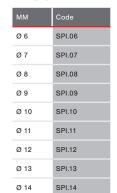
SSPI.14

Ø 14





DIA Ø 6 - 14 mm



DoC 2"









- HSS 19.05 mm (3/4") Weldon shank
- 30 mm length (DoC)
- Sizes Ø 6 11 mm, 1 mm increments

#### SSPI.KIT

#### 6 piece Weldon twist drill set

- HSS 19.05 mm (3/4") Weldon shank
- 135° split point
- 50 mm length (DoC)
- Sizes Ø 6 11 mm, 1 mm increments

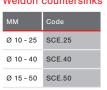
#### SPI.KIT

### Countersinks

- HSS 19.05 mm (3/4") Weldon shank
- 3 cutting edges

#### Weldon countersinks

мм	Code
Ø 10 - 25	SCE.25
Ø 10 - 40	SCE.40
Ø 15 - 50	SCE.50





#### Straight shank countersinks

ММ	Code
Ø 6.3	CSB.63
Ø 8.3	CSB.83
Ø 10.4	CSB.104
Ø 12.4	CSB.124
Ø 16.5	CSB.165
Ø 20.5	CSB.205

#### 6 piece straight shank countersink set

- Sizes Ø 6.3 8.3 10.4 12.4 16.5 20.5 mm
- HSS-Cobalt (M35 quality) straight shank
- Compatible with every drill chuck
- 3 cutting edges
- 90°

CBS.620



#### Twist drills



Watch our machines in action on: www.youtube.com/euroboorby





- HSS-Cobalt (M35 quality)
- 135° split point
- Compatible with every drill chuck

#### DIA Ø 1 - 13 mm

ММ	Code
Ø 1.0	TDCO.010
Ø 1.5	TDCO.015
Ø 2.0	TDCO.020
Ø 2.5	TDCO.025
Ø 3.0	TDCO.030
Ø 3.3	TDCO.033
Ø 3.5	TDCO.035
Ø 4.0	TDCO.040
Ø 4.2	TDCO.042
Ø 4.5	TDCO.045
Ø 5.0	TDCO.050
Ø 5.5	TDCO.055
Ø 6.0	TDCO.060
Ø 6.5	TDCO.065
Ø 6.8	TDCO.068

ММ	Code
Ø 7.0	TDCO.070
Ø 7.5	TDCO.075
Ø 8.0	TDCO.080
Ø 8.5	TDCO.085
Ø 9.0	TDCO.090
Ø 9.5	TDCO.095
Ø 10.0	TDCO.100
Ø 10.2	TDCO.102
Ø 10.5	TDCO.105
Ø 11.0	TDCO.110
Ø 11.5	TDCO.115
Ø 12.0	TDCO.120
Ø 12.5	TDCO.125
Ø 13.0	TDCO.130

Sizes Ø 1.0 - 7.5 mm come pre-packed in hanger box sets of 10 pcs. Sizes Ø 8.0 - 13.0 mm are pre-packed in hanger box sets of 5 pcs. Also available as 19-piece (TDS.100) and 25-piece (TDS.200) set.



#### 25 piece Drill Bit set

- Sizes Ø 1-13 mm with 0,5 mm increments. 3-flats shank (4 mm and up)
- HSS-G (Fully Ground)
- Fully ground, not roll-forged, for more stability
- DIN 338
- 118° split point
- Compatible with every drill chuck
- Drills also sold per 5 or 10 pieces

#### TDH.25



#### 25 piece Drill Bit set

- Sizes Ø 1-13 mm with 0,5 mm increments. 3-flats shank (4mm and up)
- HSS-Co Steel-cobalt alloy (M35)
- Fully ground, not roll-forged, for more stability
- DIN 338
- 135° split point
- · Compatible with almost every drill chuck
- Drills also sold per 5 or 10 pieces

#### TDC.25



#### 25 piece twist drill set

- Sizes Ø 1 13 mm,
   0.5 mm increments
- HSS TiN coated
- DIN 338
   118° point
- Compatible with every drill chuck

#### TDS.190



#### 19 piece twist drill set

- Sizes Ø 1 10 mm, 0.5 mm increments
- HSS-Cobalt (M35 guality)
- DIN 338
- 135° split point
- Compatible with every drill chuck
- Drills also sold per 5 and 10 pieces

TDS.100



#### 25 piece twist drill set

- Sizes Ø 1 13 mm, 0.5 mm increments
- HSS-Cobalt (M35 quality)
- DIN 338
- 135° split point
- Compatible with every drill chuck
- Drills also sold per 5 and 10 pieces

TDS.200

## Step drills

- HSS TiN coated
- Spiral flute for efficient chip removal

#### Step drills

ММ	Code
Ø 4 - 12	ESD.412
Ø 4 - 20	ESD.420
Ø 6 - 30	ESD.630

#### 3-piece step drill set

- Sizes:
- Ø 4 12 mm
- Ø 4 20 mm
- Ø 6 30 mm

  HSS TiN coated
- Spiral flute for efficient chip removal

#### ESS.430/2



#### Magnetic stick for cleaning up metal shavings.

#### Ø 22 x 400 mm

Simply wave the magnetic stick over the metal shavings to pick them up, carry them over to your scrap barrel, pull the plunger and the shavings are neatly deposited.

The Euroboor magic stick is strong enough to quickly clean up your biggest mess of metal shavings.

- Clean up sharp-edged metal chips, screws and other metal parts easily
- Items are safely ejected off of magic stick without hand contact
- Ideal for hard-to-reach spaces

MAGICSTICK





### Tapping chucks



Watch our machines in action on: www.youtube.com/euroboorby



# Morse Taper torque controlled tapping chucks

Specifically designed for use in combination with portable magnetic drilling machines.

#### **Benefits**

- + Quick and precise installation of taps
- + Increased operation accuracy
- + Drastically reduced risk of broken taps and destroyed threads

#### **Features**

- Slip clutch torque limiter
- · Clear torque controller adjustment scale
- · Full instruction manual including:
  - Installation and mounting guide
  - Torque setting guide
  - Tapping speed guide
  - m/min (ft/min) to rpm calculation
  - Cutting fluid recommendation
  - Maintenance guide
- · Full "all parts" servicing possibility
- Complete delivery including:
  - 2 different rubber centration collets
  - All tools required for installation and adjustment





#### Torque controlled tapping chuck MT3

Machine tap sizes
 M8 up to M20 (DIN 371
 and DIN376)

ETC.2

 Machine tap sizes M14 up to M30 (DIN376)

ETC.3



#### Tapping chuck B16 MT2 - 3

- Quick change M5 M12
- Including rubber clamps
- GSW.172121 (Ø 4 7 mm)
- GSW.172122 (Ø 7 10 mm)
- Auto reverse
  GSW.512R

# Tapping chuck B22 MT3 - 4 • Quick change M8 - M20

- Quick change M8 M20
   Including rubber clamps
- GSW.172202 (Ø 10.38 14 mm)
- GSW.172203 (Ø 16 mm)
- Auto reverse
- GSW.820R

#### **Feature overview**

	Morse Taper	Tap capacity	Slip clutch	Automatic reverse
ETC.2	MT3	M8 - M20	•	-
ETC.3	MT3	M14 - M30	•	-
GSW.512R	B16 MT2 / 3	M5 - M12	-	•
GSW.820R	B22 MT3 / 4	M8 - M20	-	•

www.euroboor.com

## Tap holders (Weldon)

All our tap holders are fitted with 3/4" Weldon shank

#### **DIN 376**

Tap holder	Shank	Code
M8	Ø 6 mm	TCM.08D376
M10	Ø 7 mm	TCM.10D376
M12	Ø 9 mm	TCM.12D376
M14	Ø 11 mm	TCM.14D376
M16	Ø 12 mm	TCM.16D376
M18	Ø 14 mm	TCM.18D376
M20	Ø 16 mm	TCM.20D376
M22 - 24	Ø 18 mm	TCM.22D376
M27	Ø 20 mm	TCM.27D376
M30	Ø 22 mm	TCM.30D376

#### ISO 529

Tap holder	Shank	Code
M8	Ø 8 mm	TCM.08I529
M10	Ø 10 mm	TCM.10I529
M12	Ø 9 mm	TCM.12I529
M14	Ø 11.2 mm	TCM.14I529
M16	Ø 12.5 mm	TCM.16I529
M18	Ø 14 mm	TCM.18I529
M20	Ø 14 mm	TCM.20I529
M22	Ø 16 mm	TCM.22I529
M24	Ø 18 mm	TCM.24I529
M27 - 30	Ø 20 mm	TCM.27D376

#### ASA

Tap holder	Shank	Code
1/4"	Ø 6.5 mm	TCM.1/4"ASA
5/16"	Ø 8.07 mm	TCM.5/16"ASA
3/8"	Ø 9.68 mm	TCM.3/8"ASA
7/16"	Ø 8.2 mm	TCM.7/16"ASA
1/2"	Ø 9.29 mm	TCM.1/2"ASA
9/16"	Ø 10.9 mm	TCM.9/16"ASA
5/8"	Ø 12.17 mm	TCM.5/8"ASA
11/16"	Ø 13.77 mm	TCM.11/16"ASA
3/4"	Ø 14.9 mm	TCM.3/4"ASA
13/16"	Ø 16.5 mm	TCM.13/16"ASA
15/16"	Ø 19.2 mm	TCM.15/16"ASA
1"	Ø 20.2 mm	TCM.1"ASA
1 1/16"	Ø 22.5 mm	TCM.1-1/16"ASA
1 1/8"	Ø 22.7 mm	TCM.1-1/8"ASA
1 3/16"	Ø 25.7 mm	TCM.1-3/16"ASA

#### JIS

JIS
JIS
1529





## Machine taps

Euroboor machine taps are high-precision tools produced according to DIN standard (DIN 371/376) from Cobalt reinforced High Speed Steel (M35 quality).

#### Green ring

- For use in materials such as construction steel, aluminium, zinc, lead, copper and brass

- Black oxide finish for improved durability
- · For use in materials such as cast iron and stainless steel



### Through holes

Green ring	Size	Specification	Ø	White ring
910.030C	M3 x 0.5	DIN 371	3.5 mm	910.030V
910.040C	M4 x 0.7	DIN 371	4.5 mm	910.040V
910.050C	M5 x 0.8	DIN 371	6 mm	910.050V
910.060C	M6 x 1.0	DIN 371	6 mm	910.060V
910.080C	M8 x 1.25	DIN 371	8 mm	910.080V
910.100C	M10 x 1.5	DIN 371	10 mm	910.100V
900.100C	M10 x 1.5	DIN 376	7 mm	900.100V
900.120C	M12 x 1.75	DIN 376	9 mm	900.120V
900.140C	M14 x 2.0	DIN 376	11 mm	900.140V
900.160C	M16 x 2.0	DIN 376	12 mm	900.160V
900.180C	M18 x 2.5	DIN 376	14 mm	900.180V
900.200C	M20 x 2.5	DIN 376	16 mm	900.200V
900.220C	M22 x 2.5	DIN 376	18 mm	900.220V
900.240C	M24 x 3.0	DIN 376	18 mm	900.240V
900.270C	M27 x 3.0	DIN 376	20 mm	900.270V
900.300C	M30 x 3.5	DIN 376	22 mm	900.300V



#### We offer the following application choices:

we offer the following application		
Through ho • Straight f		Blind ho
Green ring	White ring	Green ri
M. EUROSCOII		M COLONIAL PARTY OF THE PARTY O

#### oles

al flute





#### **Blind holes**

Green ring	Size	Specification	Ø	White ring
910.031C	M3 x 0.5	DIN 371	3.5 mm	910.031V
910.041C	M4 x 0.7	DIN 371	4.5 mm	910.041V
910.051C	M5 x 0.8	DIN 371	6 mm	910.051V
910.061C	M6 x 1.0	DIN 371	6 mm	910.061V
910.081C	M8 x 1.25	DIN 371	8 mm	910.081V
910.101C	M10 x 1.5	DIN 371	10 mm	910.101V
900.101C	M10 x 1.5	DIN 376	7 mm	900.101V
900.121C	M12 x 1.75	DIN 376	9 mm	900.121V
900.141C	M14 x 2.0	DIN 376	11 mm	900.141V
900.161C	M16 x 2.0	DIN 376	12 mm	900.161V
900.181C	M18 x 2.5	DIN 376	14 mm	900.181V
900.201C	M20 x 2.5	DIN 376	16 mm	900.201V
900.221C	M22 x 2.5	DIN 376	18 mm	900.221V
900.241C	M24 x 3.0	DIN 376	18 mm	900.241V
900.271C	M27 x 3.0	DIN 376	20 mm	900.271V
900.301C	M30 x 3.5	DIN 376	22 mm	900.301V





## Tap and twist drill set

Ø 2.5 mm

Ø 3.3 mm

Ø 4.2 mm

Ø 5 mm

Ø 6.8 mm

Ø 8.5 mm

Ø 10.2 mm

#### 14 piece twist drill and tap set

- HSS-Cobalt (M35 quality)
- DIN 371/376
- Through holes: straight flute
- White ring: black oxide finish for improved durability.

  For use in materials such as cast iron and stainless steel
- Twist drills (TDCO-series) also sold per 5 and 10 pieces and taps also available separately

#### DTS.312

## Drill tap combination (sets)

#### Features

- Drilling & tapping with 1 tool
- Also suitable for hard metals (such as stainless steel)
- Cost saver
- No need for drill chuck adapter
- No need for drill chuck
- No need for tap holder
- Time saver:
  - No need finding the correct tool
- No need to interchange tools
- No need to reposition drilling machine
- Especially suitable for on-the-job tasks with limitations to the amount of tools you can bring along.
- HSS-Cobalt (M35 quality)
- Black oxide coating







#### Application

- Alloy steels, castings & forgings
- Suitable and directly fitting (19.05 mm Weldon connection) to Euroboor magnetic drilling machines: ECO.50-T,

ECO.50+/T,

ECO.55S/T,

ECO.558+/T,

ECO.558+/TA,

ECO.100/4 (D), ECO.100s+/T,

ECO.100s+/T, ECO.100s+/TD,

TUBE.55S/T

TUBE.55<sub>S+/T</sub>

Part number	Tap size	Max. drilling/ tapping depth
EDT.08	M8 x 1.25	17 mm
EDT.10	M10 x 1.5	20 mm
EDT.12	M12 x 1.75	20 mm
EDT.14	M14 x 2.0	18 mm
EDT.16	M16 x 2.0	18 mm
EDT.18	M18 x 2.5	20 mm
EDT.20	M20 x 2.5	25 mm
EDT.22	M22 x 2.5	24 mm
EDT.24	M24 x 3.0	26 mm
EDT.27	M27 x 3.0	29 mm
EDT.30	M30 x 3.5	31 mm

#### Drill tap combination sets

- Delivered in luxury case
- Content: EDT.08, EDT.10 and EDT.12

#### EDT.SET/1

- Delivered in luxury case
- Content: EDT.14, EDT.16 and EDT.18

#### EDT.SET/2

www.euroboor.com

# Sets

With the developing of our innovative tools, we focus on adding value and making your daily work easier. Our sets are a good example of this. We offer a wide range of sets for annular cutting, twist drilling, tapping and many more.



#### 25 piece Drill Bit set

- Sizes Ø 1-13 mm with 0,5 mm increments. 3-flats shank (4 mm and up)
- HSS-G (Fully Ground)
- Fully ground, not roll-forged, for more stability
- DIN 338
- 118° split point
- Compatible with every drill chuck
- Drills also sold per 5 or 10 pieces

TDH.25



#### 25 piece Drill Bit set

- Sizes Ø 1-13 mm with 0,5 mm increments. 3-flats shank (4mm and up)
- HSS-Co Steel-cobalt alloy (M35)
- · Fully ground, not roll-forged, for more stability
- DIN 338
- 135° split point
- Compatible with almost every drill chuck
- Drills also sold per 5 or 10 pieces

TDC.25

## 25 piece twist drill set

- Sizes Ø 1 13 mm, 0.5 mm increments
- HSS TiN coated
- DIN 338
- 118° point
- Compatible with every drill chuck

TDS.190



#### 19 piece twist drill set

- Sizes Ø 1 10 mm, 0.5 mm increments
- HSS-Cobalt (M35
  quality)
- DIN 338
- 135° split point
- Compatible with every drill chuck
- Drills also sold per 5 and 10 pieces

TDS.100



#### 25 piece twist drill set

- Sizes Ø 1 13 mm, 0.5 mm increments
- HSS-Cobalt (M35
  quality)
- DIN 338
- 135° split point
- Compatible with every drill chuck
- Drills also sold per 5 and 10 pieces

TDS.200



#### 6 piece Weldon twist drill set

- HSS 19.05 mm (3/4") Weldon shank
- 135° split point
- 30 mm length (DoC)
- Sizes Ø 6 11 mm, 1 mm increments

SSPI.KIT



#### 6 piece Weldon twist drill set

- HSS 19.05 mm (3/4") Weldon shank
- 135° split point
- 50 mm length (DoC)
- Sizes Ø 6 11 mm, 1 mm increments

SPI.KIT



#### 3-piece step drill set

- Sizes:
- Ø 4 12 mm
- Ø 4 20 mm Ø 6 - 30 mm
- HSS TiN coated
- Spiral flute for efficient chip removal

ESS.430/2



## 6 piece straight shank countersink set

- Sizes Ø 6.3 8.3 10.4 12.4 16.5 20.5 mm
- HSS-Cobalt (M35 quality) straight shank
  Compatible with every drill chuck
- 3 cutting edges
- 90°

CBS.620



#### 14 piece twist drill and tap set

- HSS-Cobalt (M35 quality)
- DIN 371/376
- Through holes: straight flute
- White ring: black oxide finish for improved durability.

  For use in materials such as cast iron and stainless steel.
- Twist drills (TDCO-series) also sold per 5 and 10 pieces and taps also available separately

DTS.312



#### **Drill tap combination sets**

- Delivered in luxury case
- Content: EDT.08, EDT.10 and EDT.12

#### EDT.SET/1

- Delivered in luxury case
- Content: EDT.14, EDT.16 and EDT.18

EDT.SET/2

# annular cutter sets

#### **High Speed Steel** metric ▼

#### Dept of Cut 30 mm, 6 cutters

- Cutter sizes Ø 14, 18, 22 mm (2 of each DoC)
- Pilot pin IBC.70 included

#### HCS.KIT

#### Dept of Cut 30 mm, 10 cutters

- Cutter sizes Ø 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm
- Pilot pin IBC.70 included

#### HCS.KIT/10

#### Dept of Cut 55 mm, 10 cutters

#### HCL.KIT/10

- Cutter sizes Ø 12, 14, 16, 18, 20, 22, 24, 26, 28, 30 mm
- · 2 x Pilot pin IBC.90 included

#### imperial ▼

#### Dept of Cut 1", 6 cutters

- Cutter sizes Ø 9/16", 11/16", 13/16" (2 of each DoC)
- Pilot pin IBC.70 included

#### HCS.KIT/8

#### Dept of Cut 1", 10 cutters

- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- 2 x Pilot pin IBC.70 included

#### HSS.KIT/10S-I1

#### Dept of Cut 2", 10 cutters

- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- 2 x Pilot pin IBC.90 included

#### HSS.KIT/10L-I1

#### Dept of Cut 55 mm, 6 cutters

- Cutter sizes Ø 14, 18, 22 mm (2 of each DoC)
- Pilot pin IBC.90 included

#### HCL.KIT

#### Dept of Cut 30 mm, 10 cutters

- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- 2 x Pilot pin IBC.70 included

#### HSS.KIT/10S-M2

#### Dept of Cut 55 mm, 10 cutters

- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- · 2 x Pilot pin IBC.90 included

#### HSS.KIT/10L-M2

#### Dept of Cut 1" & 2 ", 6 cutters

- Cutter sizes Ø 9/16", 11/16", 13/16" (1 of each DoC)
- · Pilot pins IBC.70 & IBC.90 included

#### HCS.KIT/9

#### Dept of Cut 1", 10 cutters

- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- 2 x Pilot pin IBC.70 included

#### HSS.KIT/10S-I2

#### Dept of Cut 2", 10 cutters

- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- 2 x Pilot pin IBC.90 included

#### HSS.KIT/10L-I2

#### **Tungsten Carbide Tipped** annular cutter sets



#### metric ▼

#### Dept of Cut 35 mm, 6 cutters

- Cutter sizes Ø 12, 14, 16, 18, 20, 22 mm
- · Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT

#### Dept of Cut 35 mm, 10 cutters

- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT/10S-M1

#### Dept of Cut 55 mm, 6 cutters

- Cutter sizes Ø 12, 14, 16, 18, 20, 22 mm
- · Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/L

#### Dept of Cut 55 mm, 10 cutters

- Cutter sizes 3 x Ø 14, 3 x Ø 18, 2 x Ø 22, 2 x Ø 26 mm
- Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/10L-M1

#### imperial ▼

#### Dept of Cut 1", 10 cutters

- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT/10S-I1

### Dept of Cut 2", 10 cutters

- Cutter sizes 2 x Ø 9/16", 2 x Ø 11/16", 2 x Ø 13/16", 2 x Ø 7/8", Ø 15/16", Ø 1"
- Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/10L-I1

#### Dept of Cut 1", 10 cutters

- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- Pilot pins IBC.75 & IBC.85 included

#### TCT.KIT/10S-I2

#### Dept of Cut 2", 10 cutters

- Cutter sizes 3 x Ø 9/16", 3 x Ø 13/16", 3 x Ø 7/8", Ø 15/16"
- · Pilot pins IBC.80 & IBC.90 included

#### TCT.KIT/10L-I2

# **B60** Bevelling machine



Watch our machines in action on: www.youtube.com/euroboorby



Technical data	
Spindle speed	2,850 rpm
Max. bevel width	24 mm (45° angle)
Bevel angle	0° - 60°
Pipe diameter	> 150 mm
Length	415 mm
Width	375 mm
Height	268 mm
Weight	24.1 kg
Motor power	1,100 W
Voltage	110 - 120 V / 60 Hz
	220 - 240 V / 50 - 60 Hz

#### Benefits

- Powerful high-efficiency motor
- Smooth control with clear, precise and simple (protected) control buttons
- Suitable for pipe material Ø > 5 15/16"
- Simple replacement and indexation of the cutting plates
- · Wide and soft handles

#### Features





Adjustment angle 0 - 60°

Bevel width 0 - 15/16"

#### Accessories B60



Milling head B60.0027





**Carbide cutting plates** 

(Sold per 10 pieces)

LKS.15



#### Magnetic digital level box

For measuring angles up to 90°

MLB.90

# **B605** Bevelling machine



Watch our machines in action on: www.youtube.com/euroboorby



Technical data	
Spindle speed	1,675 - 2,850 rpm
Max. bevel width	24 mm (45° angle)
Bevel angle	0° - 60°
Pipe diameter	> 150 mm
Length	415 mm
Width	375 mm
Height	268 mm
Weight	24.1 kg
Motor power	1,800 W
Voltage	110 - 120 V / 60 Hz
	220 - 240 V / 50 - 60 Hz

#### Benefits

- Powerful high-efficiency motor
- Smooth control with clear, precise and simple (protected) control buttons
- Suitable for pipe material Ø > 5 15/16"
- · Simple replacement and indexation of the cutting plates
- · Wide and soft handles
- Exceptional powerful motor (16.4 A)
- Extremely suitable for stainless steel (with the use of stainless steel guide plate)
- Overload protection

#### Features



Adjustable speed



Adjustment angle 0 - 60°



0 - 15/16"

#### Accessories B60S





To use on stainless steel materials.





**Carbide cutting plates** 

(Sold per 10 pieces)

LKS.15



Milling head

B60.0027



#### Magnetic digital level box

For measuring angles up to 90°

MLB.90

# B455 Bevelling machine



Watch our machines in action on: www.youtube.com/euroboorbv



Technical data	
Spindle speed	1,750 - 5,250 rpm
Max. bevel width	6 mm (45° angle)
Min. diameter for inside bevels	20 mm
Spindle thread	M12 x 1.75
Length	458 mm
Width	137 mm
Height	300 mm
Weight	4.4 kg
Motor power	1,250 W
Voltage	110 - 120 V / 60 Hz
	220 - 240 V / 50 - 60 Hz

#### Benefits

- Ergonomic main handle, user-friendly controls, spindle speed adjustment range for various materials
- Quick and easy bevel width adjustment
- · Clear bevel width indication
- Precision 45° milling head with 3 cutting edges (incl. cutting plates)
- Soft-grip front handle suitable for left- and right-handed users
- · Electronic speed stabilization
- Anti-kickback and -breakthrough torque control (slow start)
- · Quick and easy carbon brush replacement



# BM45AIR Mini Air Bevelling machine



Watch our machines in action on: www.youtube.com/euroboorbv



Technical data	
Spindle speed	28,000 rpm
Max. bevel width	2 mm (45° angle)
Length	150 mm
Height	45 mm
Weight	320 g
Air inlet	Ø 6.35 mm
Air hose	Ø 9.525 mm
Connector type	Euro type 1/4"
Avg. air consumption	0.15 m³/min (5 SCFM)
Working pressure	6 - 8 bar (90 -115 psi)

#### Benefits

- Compact and great ergonomic design
- Lightweight machine
- Including 2x 45° and 2x R1.5 cutting plates
- Safety lever trigger to prevent accidental starts
- Bevel depth indicator for precise adjustment of the bevel size
- 6-speed air speed regulator



#### Features



Working pressure 6 - 8 bar (90 - 115 PSI)

#### Accessories BM45AIR





BM45AIR.45ST



Cutting plate radius 1.5 for steel. (Sold per 10 pieces) BM45AIR.R1.5



stainless steel. Angle 45°. (Sold per 10 pieces)

Cutting plate for

BM45AIR.45SS



aluminum. Angle 45°. cutting plate. Sold (Sold per 10 pieces) per piece.



Screw for BM45AIR

BM45AIR.45ALU BM45AIR.0009



Magnetic digital level box For measuring angles up to 90° MLB.90









# EDG.600 Electric die grinder



Watch our machines in action on: www.youtube.com/euroboorby



Technical data	
Speed (no load)	12,000 - 27,000 rpm
Motor power	600 W
Collet	6 mm
Weight	1.8 kg
Valtage	110 - 120 V / 60 Hz
Voltage	220 - 240 V / 50 - 60 Hz

#### **Benefits**

- Lightweight, small and compact design for use in tight spaces
- · Easy to hold and carry
- Ideal for finishing dies, press working, die casting and moulding work



#### **Features**



Adjustable speed

#### Available as

Carton box

#### EDG.600

• Luxury case

#### EDG.600 CASE

Luxury case set, including a 10 pieces rotary burrs set.
 Set includes:

Rotary burrs type B cylinder with end cut (RB.B0606 + RB.B1206)

Rotary burrs type C cylinder ball nose (RB.C0606 + RB.C1206)

Rotary burrs type D cylinder ball (RB.D0606 + RB.D1206) Rotary burrs type F cylinder ball nose tree (RB.F0606 + RB.F1206)

Rotary burrs type G cylinder arc pointed tree (RB.G0606 + RB.G1206)

#### EDG.600 SET





# EBG.600/18V Electric Die Grinder

#### **Battery Operated**



Watch our machines in action on: www.youtube.com/euroboorbv



Technical data						
Speed (no load)	7,000 – 26,000 rpm					
Motor power	800 W					
Connection	6 mm Collet					
Length	450 mm					
Width	80 mm					
Height	83 mm					
Weight	1.5 kg					
Battery capacity	18 V 5 Ah Li-ion, 18 V 9 Ah Li-ion					

#### **Benefits**

- Lightweight, small and compact design for use in tight spaces
- · Easy to hold and carry
- Ideal for finishing dies, press working, die casting and moulding work
- Powerful 18V battery
- · Compatible with the Makita LXT18V battery platform
- Brushless technology



#### **Features**







Brushless motor



Battery operated



#### Accessories

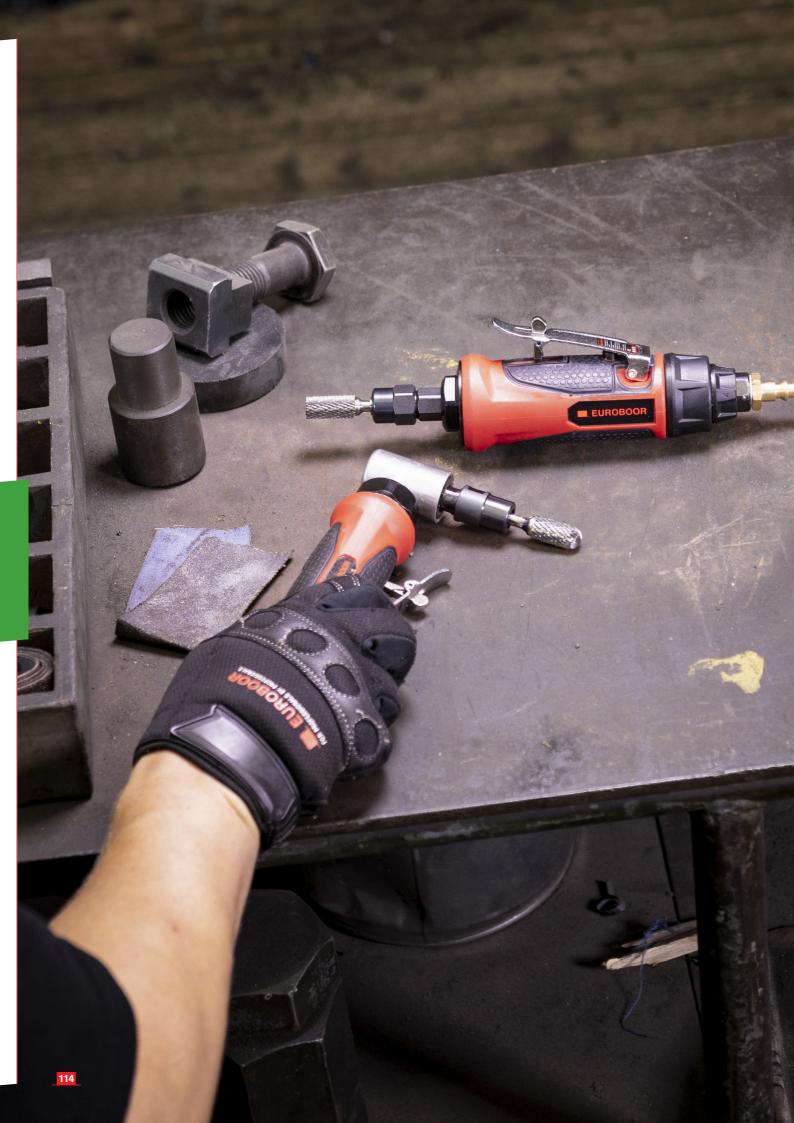


EB5A, EB9A





EBC1 Battery not included.



# ADG.2(A/S/E) Air die grinders

Watch our machines in action on: www.youtube.com/euroboorbv



Technical data	Technical data					
	ADG.2A	ADG.2S	ADG.2E			
Weight	0.53 kg	0.67 kg	1.31 kg			
Free speed	20,000 22,000 rpm rpm					
Collet	6 mm					
Air inlet (PT)	1/4"					
Air hose (ID)	3/8"					
Avg. air consumption	0.113 m³/min (4 SCFM) 0.142 m³/min (5 SCFM)					
Working pressure	6.3 bar (90 psi)					
Length	193	mm	338 mm			
Height	70	70 mm				

#### **Benefits**

- Excellent for grinding, polishing, deburring and smoothing sharp edges
- · Four-speed rear regulator
- 360 degrees adjustable exhaust deflector
- Safety lever trigger





ADG.2S

#### **Features**



Adjustable speed



pressure 6.3 bar (90 PSI)

#### Available as

- Carton box
- Standard 6 mm (1/4") collet
- Optional 3 mm (1/8") collet

#### ADG.2A / ADG.2S / ADG.2E

- Luxury case
- Standard 6 mm (1/4") and 3 mm (1/8") collet

#### ADG.2A-CASE / ADG.2S-CASE / ADG.2E-CASE

- Luxury case set, including a 10 pieces rotary burrs set.
   Set includes:
- Standard 6 mm (1/4") and 3 mm (1/8") collet
- Rotary burrs type B cylinder with end cut (RB.B0606 + RB.B1206)
- Rotary burrs type C cylinder ball nose (RB.C0606 + RB.C1206)
- Rotary burrs type D cylinder ball (RB.D0606 + RB.D1206)
- Rotary burrs type F cylinder ball nose tree (RB.F0606 + RB.F1206)
- Rotary burrs type G cylinder arc pointed tree (RB.G0606 + RB.G1206)

#### ADG.2A-SET / ADG.2S-SET / ADG.2E-SET



Carbide Rotary Burrs

Euroboor carbide rotary burrs
are available in different cuts,
models and sizes. Your choice
depends on which material you

have to work on and what finish

you need.

Our burrs have an universal shank, but are best used combined with one of the Euroboor grinding machines.





#### Use with:

Euroboor die grinders EDG.600, ADG.2A, ADG.2S, ADG2E or other powerful die grinders

#### **Applications:**

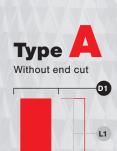
- · Cutting out holes
- Deburring
- Leveling
- Milling out
- Surfacing
- Smoothing welds
- Shaping

#### Also suitable for:

- Robo
- Flexible and straight shaft drive
- CNC machines

# Carbide Rotary Burrs specification

	100	Cast iron	Cast steel	Unhardened steels	Hardened steels	Low alloy steels	High alloy steels	Heat treated steels	Stainless steel	Titanium alloy	Brass	Bronze / Copper	Plastics	Aluminium	Zinc alloy
	Single cut	•	•	•		•			•		•	•			1
	Double cut	•	•	•		•			•		•	•			
1	Diamond cut	•	•	•	•	•	•	•	•	•	•	•			
	Alu cut												•	•	•



### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.A0303
6	6	16	61	RBS.A0606
8	6	20	65	RBS.A0806
10	6	20	55	RBS.A1006
12	6	25	70	RBS.A1206
16	6	25	70	RBS.A1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.A0303
6	6	16	61	RB.A0606
8	6	20	65	RB.A0806
10	6	20	65	RB.A1006
10	6	20	185	RBDL.A1006
12	6	25	70	RB.A1206
12	6	25	175	RBDL.A1206
16	6	25	70	RB.A1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	20	65	RBD.A0806
10	6	20	65	RBD.A1006
12	6	25	70	RBD.A1206
16	6	25	70	RBD.A1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	16	61	RBA.A0606
10	6	20	65	RBA.A1006
12	6	25	70	RBA.A1206
16	6	25	70	RBA.A1606







#### Single cut

D1	D2	L1	L2	Code
3	3	16	38.5	RBS.B0303
6	6	13	61	RBS.B0606
8	6	20	65	RBS.B0806
10	6	20	65	RBS.B1006
12	6	25	70	RBS.B1206
16	6	25	70	RBS.B1606

## **Double cut**

D1	D2	L1	L2	Code
3	3	16	38.5	RB.B0303
6	6	13	61	RB.B0606
8	6	20	65	RB.B0806
10	6	20	65	RB.B1006
10	6	20	170	RBDL.B1006
12	6	25	70	RB.B1206
12	6	25	175	RBDL.B1206
16	6	25	70	RB.B1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	20	65	RBD.B0806
10	6	20	65	RBD.B1006
12	6	25	70	RBD.B1206
16	6	25	70	RBD.B1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	13	61	RBA.B0606
10	6	20	65	RBA.B1006
12	6	25	70	RBA.B1206



L1

### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.C0303
6	6	16	61	RBS.C0606
8	6	20	65	RBS.C0806
9,5	6	20	65	RBS.C1006
12	6	25	70	RBS.C1206
16	6	25	70	RBS.C1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.C0303
6	6	16	61	RB.C0606
8	6	20	65	RB.C0806
10	6	20	65	RB.C1006
10	6	20	170	RBDL.C1006
12	6	25	70	RB.C1206
12	8	25	70	RB.C1208
12	6	25	175	RBDL.C1206
16	6	25	70	RB.C1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	20	65	RBD.C0806
9,5	6	20	65	RBD.C1006
12	6	25	70	RBD.C1206
16	6	25	70	RBD.C1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	16	61	RBA.C0606
10	6	20	65	RBA.C1006
12	6	25	70	RBA.C1206
16	6	25	70	RBA.C1606



### Single cut

D1	D2	L1	L2	Code
3	3	2.7	38.5	RBS.D0303
6	6	5.4	50	RBS.D0606
8	6	7.2	52	RBS.D0806
10	6	9	54	RBS.D1006
12	6	10.8	55	RBS.D1206
16	6	14.4	59	RBS.D1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	2.7	38.5	RB.D0303
6	6	5.4	50	RB.D0606
8	6	7.2	52	RB.D0806
10	6	9	54	RB.D1006
10	6	9	159	RBDL.D1006
12	6	10.8	55	RB.D1206
12	6	10.8	161	RBDL.D1206
16	6	14.4	59	RB.D1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	7.2	52	RBD.D0806
10	6	9	54	RBD.D1006
12	6	10.8	55	RBD.D1206
16	6	14.4	59	RBD.D1606

### Alu cut

D1	D2	L1	L2	Code
6	6	5.4	50	RBA.D0606
10	6	9	54	RBA.D1006
12	6	10.8	55	RBA.D1206
16	6	14.4	59	RBA.D1606



D2

### Single cut

D1	D2	L1	L2	Code
3	3	7	38.5	RBS.E0303
6	6	10	55	RBS.E0606
8	6	13	58	RBS.E0806
10	6	16	61	RBS.E1006
12	6	20	65	RBS.E1206
16	6	25	75	RBS.E1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	7	38.5	RB.E0303
6	6	10	55	RB.E0606
8	6	13	58	RB.E0806
10	6	16	61	RB.E1006
10	6	16	166	RBDL.E1006
12	6	20	65	RB.E1206
12	6	20	170	RBDL.E1206
16	6	25	70	RB.E1606

#### **Diamond cut**

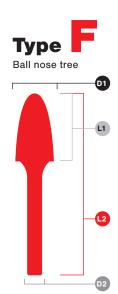
D1	D2	L1	L2	Code
8	6	13	58	RBD.E0806
10	6	16	61	RBD.E1006
12	6	20	65	RBD.E1206
16	6	25	70	RBD.E1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	10	55	RBA.E0606
10	6	16	61	RBA.E1006
12	6	20	65	RBA.E1206



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### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.F0303
6	6	18	63	RBS.F0606
8	6	20	65	RBS.F0806
10	6	20	65	RBS.F1006
12	6	25	70	RBS.F1206
16	6	25	70	RBS.F1606

**Diamond cut** 

D1	D2	L1	L2	Code
8	6	20	65	RBD.F0806
10	6	20	65	RBD.F1006
12	6	25	70	RBD.F1206
16	6	25	70	RBD.F1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.F0303
6	6	18	63	RB.F0606
8	6	20	65	RB.F0806
10	6	20	65	RB.F1006
10	6	20	175	RBDL.F1006
12	6	25	70	RB.F1206
12	8	25	70	RB.F1208
12	6	25	175	RBDL.F1206
16	6	25	70	RB.F1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	18	63	RBA.F0606
10	6	20	65	RBA.F1006
12	6	25	70	RBA.F1206
16	6	25	70	RBA.F1606





### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.G0303
6	6	18	63	RBS.G0606
8	6	20	65	RBS.G0806
10	6	20	65	RBS.G1006
12	6	25	70	RBS.G1206
16	6	25	70	RBS.G1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.G0303
6	6	18	63	RB.G0606
8	6	20	65	RB.G0806
10	6	20	65	RB.G1006
10	6	20	170	RBDL.G1006
12	6	25	70	RB.G1206
12	6	25	170	RBDL.G1206
16	6	25	70	RB.G1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	20	65	RBD.G0806
9,5	6	20	65	RBD.G1006
12	6	25	70	RBD.G1206
16	6	25	70	RBD.G1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	18	63	RBA.G0606
10	6	20	65	RBA.G1006
12	6	25	70	RBA.G1206
16	6	25	70	RBA.G1606







### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.H0303
6	6	18	63	RBS.H0606
8	6	20	65	RBS.H0806
10	6	20	65	RBS.H1006
12	6	25	70	RBS.H1206
16	6	36	81	RBS.H1606

**Diamond cut** 

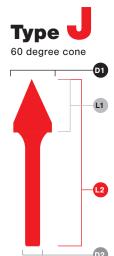
D1	D2	L1	L2	Code
8	6	20	65	RBD.H0806
10	6	25	70	RBD.H1006
12	6	32	77	RBD.H1206
16	6	36	81	RBD.H1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.H0303
6	6	18	63	RB.H0606
8	6	20	65	RB.H0806
10	6	20	70	RB.H1006
12	6	25	77	RB.H1206
12	6	25	202	RBDL.H1206
16	6	25	81	RB.H1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	18	63	RBA.H0606
10	6	25	70	RBA.H1006
12	6	32	77	RBA.H1206
16	6	36	81	RBA.H1606



### Single cut

D1	D2	L1	L2	Code
6	6	5.2	50	RBS.J0606
10	6	8.7	53	RBS.J1006
12	6	10.4	55	RBS.J1206
16	6	13.8	58	RBS.J1606

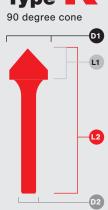
#### **Double cut**

D1	D2	L1	L2	Code
6	6	5.2	50	RB.J0606
10	6	8.7	53	RB.J1006
12	6	10.4	55	RB.J1206
16	6	13.8	58	RB.J1606

#### **Diamond cut**

D1	D2	L1	L2	Code
10	6	8.7	53	RBD.J1006
12	6	10.4	55	RBD.J1206
16	6	13.8	58	RBD.J1606

# Type K 90 degree cone



### Single cut

D1	D2	L1	L2	Code
6	6	3	48	RBS.K0606
10	6	5	50	RBS.K1006
12	6	6	51	RBS.K1206
16	6	8	53	RBS.K1606

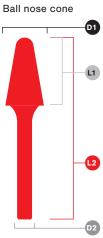
#### **Double cut**

D1	D2	L1	L2	Code
6	6	3	48	RB.K0606
10	6	5	50	RB.K1006
12	6	6	51	RB.K1206
16	6	8	53	RB.K1606

#### **Diamond cut**

D1	D2	L1	L2	Code
10	6	5	50	RBD.K1006
12	6	28	73	RBD.K1206
16	6	33	78	RBD.K1606

# Type Ball nose cone



### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.L0303
6	6	16	61	RBS.L0606
8	6	22	67	RBS.L0806
10	6	25	70	RBS.L1006
12	6	28	73	RBS.L1206
16	6	33	78	RBS.L1606

#### **Double cut**

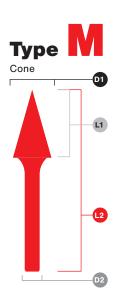
D1	D2	L1	L2	Code
3	3	13	38.5	RB.L0303
6	6	18	61	RB.L0606
8	6	22	67	RB.L0806
10	6	25	70	RB.L1006
10	6	25	175	RBDL.L1006
12	6	28	73	RB.L1206
12	6	28	178	RBDL.L1206
16	6	33	78	RB.L1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	22	67	RBD.L0806
10	6	25	70	RBD.L1006
12	6	28	73	RBD.L1206
16	6	33	78	RBD.L1606

### Alu cut

D1	D2	L1	L2	Code
6	6	16	61	RBA.L0606
10	6	25	70	RBA.L1006
12	6	28	73	RBA.L1206



#### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.M0303
6	6	18	63	RBS.M0606
8	6	20	65	RBS.M0806
10	6	20	65	RBS.M1006
12	6	25	70	RBS.M1206
16	6	25	70	RBS.M1606

#### **Diamond cut**

D1	D2	L1	L2	Code
8	6	20	65	RBD.M0806
10	6	20	65	RBD.M1006
12	6	25	70	RBD.M1206
16	6	25	70	RBD.M1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.M0303
6	6	18	63	RB.M0606
8	6	20	65	RB.M0806
10	6	20	65	RB.M1006
12	6	25	70	RB.M1206
16	6	25	70	RB.M1606

#### Alu cut

D1	D2	L1	L2	Code
6	6	18	63	RBA.M0606
10	6	20	65	RBA.M1006
12	6	25	70	RBA.M1206



#### Single cut

D1	D2	L1	L2	Code
3	3	13	38.5	RBS.N0303
6	6	7	52	RBS.N0606
10	6	10	55	RBS.N1006
12	6	13	58	RBS.N1206
16	6	16	61	RBS.N1606

#### **Diamond cut**

D1	D2	L1	L2	Code
10	6	10	55	RBD.N1006
12	6	13	58	RBD.N1206
16	6	16	61	RBD.N1606

#### **Double cut**

D1	D2	L1	L2	Code
3	3	13	38.5	RB.N0303
6	6	17	52	RB.N0606
10	6	10	55	RB.N1006
12	6	13	58	RB.N1206
16	6	16	61	RB.N1606

## **Applications**

1

#### Single cut carbide burr



Single cut provides superior stock removal with long chips, and good surface finishes.

#### **Double** cut carbide burr



Double cut burrs allows rapid stock removal. The finer toothing surface provides high stock removal with fine and short chips for high control and great surface finish.

#### **Diamond** cut carbide burr



This uniquely developed burr shape enhances the capacity of control and smooth processing on harder steel types. The extra fine toothing creates the best surface finish with extremely small chips, and high stock removal.

#### Alu cut carbide burr



They are especially designed to have a high stock removal on non-ferrous materials.

#### Samourai precision

Advanced Japanese heat treatment technology is applied on the Euroboor rotary burrs, improving the strength of the steel, creating sharper edges on the burr and give wear resistance.

#### More stock removal, less time

Thanks to the design and the characteristics of tungsten carbide, Euroboor rotary burrs provide high stock removal. This saves a lot of time and energy.

# Carbide Rotary Burrs

#### **Long Lasting**

Due to the innovative surface treatment and the choice of materials, the Euroboor rotary burrs are long lasting and therefore perfect for usage over a longer period of time.

#### Long lasting

The improved welding technology on the shank is making the burrs very strong and capable of handling high forces and high temperatures without breaking.

#### High durability - Less waste

All of our research, innovations and applied technologies brings you high quality rotary burrs that are suited for the toughest of jobs, without breaking or losing performance. This means no more waste of burrs and money. That makes Euroboor burrs the best choice for you!

#### Conical shaped shank

The advanced conical shape of the shank divides the pressure over a larger area, making the burr even less likely to break under high forces.





#### **Double cut**

Set 5 pcs (RBS.0510)

D1	D2	L1	L2	Model
10	6	20	65	RB.B1006
10	6	20	65	RB.C1006
10	6	20	65	RB.F1006
10	6	20	65	RB.G1006
10	6	25	70	RB.L1006

#### **Double cut**

Set 5 pcs (RBS.0512)

D1	D2	L1	L2	Model
12	6	25	70	RB.B1206
12	6	25	70	RB.C1206
12	6	25	70	RB.F1206
12	6	25	70	RB.G1206
12	6	28	73	RB.L1206



#### **Double cut**

Set 10 pcs (RBS.1010)

D1	D2	L1	L2	Model	QTY
10	6	20	65	RB.B1006	2
10	6	20	65	RB.C1006	2
10	6	20	65	RB.F1006	2
10	6	20	65	RB.G1006	2
10	6	25	70	RB.L1006	2

#### **Double cut**

Set 10 pcs (RBS.1012)

D1	D2	L1	L2	Model	QTY
12	6	25	70	RB.B1206	2
12	6	25	70	RB.C1206	2
12	6	25	70	RB.F1206	2
12	6	25	70	RB.G1206	2
12	6	28	73	RB.L1206	2

#### **Double cut**

Set 10 pcs (RBS.BOX)

D1	D2	L1	L2	Model
6	6	13	61	RB.B0606
6	6	16	61	RB.C0606
6	6	5,4	50	RB.D0606
6	6	18	63	RB.F0606
6	6	18	63	RB.G0606

D1	D2	L1	L2	Model
12	6	25	70	RB.B1206
12	6	25	70	RB.C1206
12	6	10,8	55	RB.D1206
12	6	25	70	RB.F1206
12	6	25	70	RB.G1206



#### **Diamond cut**

Set 5 pcs (RBS.0510D)

D1	D2	L1	L2	Model
10	6	20	65	RBD.B1006
10	6	20	65	RBD.C1006
10	6	20	65	RBD.F1006
9,5	6	20	65	RBD.G1006
10	6	25	70	RBD.L1006

#### **Diamond cut**

Set 5 pcs (RBS.0512D)

D1	D2	L1	L2	Model
12	6	25	70	RBD.B1206
12	6	25	70	RBD.C1206
12	6	25	70	RBD.F1206
12	6	25	70	RBD.G1206
12	6	28	73	RBD.L1206



#### **Diamond cut**

Set 10 pcs (RBS.1010D)

D1	D2	L1	L2	Model	QTY
10	6	20	65	RBD.B1006	2
10	6	20	65	RBD.C1006	2
10	6	20	65	RBD.F1006	2
10	6	20	65	RBD.G1006	2
10	6	25	70	RBD.L1006	2

#### **Diamond cut**

Set 10 pcs (RBS.1012D)

D1	D2	L1	L2	L2 Model	
12	6	25	70	RBD.B1206	2
12	6	25	70	RBD.C1206	2
12	6	25	70	RBD.F1206	2
12	6	25	70	RBD.G1206	2
12	6	28	73	RBD.L1206	2



# EDC.355 Dry cut-off saw



Mounting holes



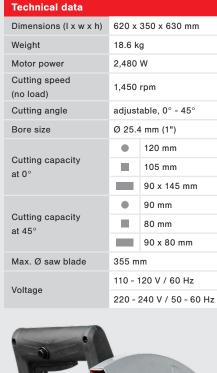
Easy blade replacement



Dust collection tray



Adjustable vice 0° - 45°



Watch our machines in action on: www.youtube.com/euroboorby



#### **Benefits**

- Adjustable sawing angle from 0° to 45°
- Molded aluminum base with adjustable angle indication.
- 3 attachment points to fix the machine to your workbench.
- Ergonomic handle and locking pin to easily carry the machine
- Safety button for protection against accidental start-up.
- Transparent protective shield for safely discharging of the chips
- Robust clamp for very precise clamping of materials
- · Dust collection tray for a cleaner workspace
- · Built-in soft-start functionality

#### Features



Cutting capacity



Adjustment angle

#### Sawblades 355 mm



saw blade 355 mi 66 teeth, bore 25.4 mm

130.355/66

steel, bore 25.4 mm



saw blade 355 mm, saw blade 355 m 66 teeth, for mild 80 teeth, steel, bore 25.4 mm bore 25.4 mm

Art. nr.:

#### Sawblade 230 mm (not suitable for EDC.355 series)



saw blade 230 mm, 48 teeth, bore 25.4 mm

Art. nr.: 230.0003



# EDC.355/36V Dry cut-off saw

Watch our machines in action on: www.youtube.com/euroboorbv

#### **Battery Operated**



Battery operated



Mounting holes



Dust collection tray



Adjustable vice 0° - 45°

#### **Technical data** 540 x 350 x 600 mm Dimensions (I x w x h) Weight 21 kg 3,000 W Motor power Cutting speed 1,200 rpm (no load) adjustable, 0° - 45° Cutting angle Bore size Ø 25.4 mm (1") 120 mm **Cutting capacity** 105 mm 90 x 145 mm 95 mm **Cutting** capacity 80 mm at 45° 90 x 80 mm Max. Ø saw blade 355 mm Voltage 18 V 9 Ah Li-ion (x2)



(Batteries are not included as standard)

#### **Benefits**

- · Battery-powered motor system
- Adjustable sawing angle from 0° to 45°
- · Molded aluminum base with adjustable angle indication.
- · 3 attachment points to fix the machine to your workbench.
- · Ergonomic handle and locking pin to easily carry the machine
- · Safety button for protection against accidental
- · Transparent protective shield for safely discharging of the chips
- · Robust clamp for very precise clamping of
- · Dust collection tray for a cleaner workspace
- · Built-in soft-start functionality
- · Brushless technology

#### **Features**



Battery operated



**LXT 18V** platform



motor



Cutting capacity 120 mm



#### Sawblades 355 mm



66 teeth, bore 25.4 mm

130.355/66



66 teeth, for mild steel, bore 25.4 mm



80 teeth, bore 25.4 mm

#### Accessories



Battery 9Ah 18V EB9A



EBC1

## EBS.500 Band saw



Simple speed adjustment with quick guide



Wide cutting angle adjustment range

Watch our machines in action on: www.youtube.com/euroboorby



Technical data				
Dimensions (I x w x h)	650 x 310 x 450 mm			
Weight	20 kg			
Motor power	1,010	N		
Cutting speed	adjustable, 30 - 80 m			
Cutting angle	adjustable, 0° - 60°			
O	<b>•</b> / <b>•</b>	125 mm		
Cutting capacity: at 0°		130 × 125 mm		
at 45°	•/■	76 mm		
at 60°	•/■	50 mm		
	13 x 0.65 x 1,440 mm,			
Saw band	10 - 14 tpi			
	M42 8% Cobalt			
Voltage	110 - 120 V / 60 Hz			
Voltage	220 - 240 V / 50 - 60 Hz			

#### **Benefits**

- Adjustable vice, cutting angle and sawing speed
- Constant speed due to digital electronic speed regulator
- Wide cutting angle adjustment range
- Double motor protection: amperage and temperature limiter
- Anti-reset safety function
- User-friendly vice with clear indicators
- Adjustable bar stop rod for mass produced cuts
- Chip scraper



#### Features



Adjustable speed



Cutting capacity 125 mm



Adjustment angle 0 - 60°





Saw band 13 x 0.65 x 1,440 mm, 6 - 10 tpi (set of 5)

Art. nr.: 500.0001

## Lifting magnets



Watch our machines in action on: www.youtube.com/euroboorby



Euroboor lifting magnets are engineered with top priority on safety and practical use. This attention to detail during the manufacturing process makes it possible to combine high-uniform magnetic strength with easy and smooth handle operation. The compact design and limited weight make the magnets easy to handle, optimize workspace and fully exploit crane capacity.

#### Safety factor 3.5

Euroboor lifting tools are designed to withstand at least 3.5 times the recommended workload and each lifting magnet is individually tested and delivered with a specific certificate as proof of safety. Our lifting tools provide reliable and consistent performance, also under extreme conditions.

### Benefits:

- Safety factor 3.5; Lift at least 3.5 times the suggested weight load
- · Suitable for flat and tubular objects
- · Suitable for rough or finished surfaces
- High lifting capacity
- Suitable for temperatures up to 80°C / 176 °F
- Maintenance free
- Certified safety
- Reliable and consistent performance, also under extreme conditions
- Easy handling and operation

Model	ELM.125	ELM.250	ELM.500	ELM.1000	ELM.2000
Length (mm)	175	213	288	336	559
Width (mm)	76	82	112	148	154
Height (mm)	134	160	195	234	295
Width of eye (mm)	30	40	42	52	52
Weight (kg)	6.5	9.4	21,2	43	95.2
Workload limit (kg) flat material	125	250	500	1,000	2,000
Workload limit (kg) round material	60	125	250	500	1,000
Plate minimal thickness (mm)	15	25	30	40	55
Round min - max thickness (Ø)	40 / 80	50 / 100	100 / 250	150 / 380	180 / 450
Max. operation temp. (°C)	< 80°	< 80°	< 80°	< 80°	< 80°





www.euroboor.com