



BROACHING AND HOLEMAKING

INCH AND METRIC TOOLS



2026/2027



EXPLORE HORN

Explore HORN

Outstanding results are always a combination of the optimum cutting process and the perfect tool. To achieve this, HORN combines advanced technology, performance and reliability. From single part to series production, for standard or special applications: Our tools offer you fast, economical, high quality solutions. To assist you when choosing cutting parameters, our tables in the respective catalogue provide proven empirical values. Take advantage of the expertise of our office staff and sales engineers.

Sustainability is a central part of our corporate philosophy. That is why we have always focused on quality assurance, environmental protection, energy efficiency and safety with regard to our products and our production. As an efficient and reliable tool partner, we make sure that you join us in an innovative and strong economic future.

Please visit our eShop, which is available around the clock.



Markus Horn
CEO
Paul Horn GmbH



Matthias Rommel
CEO
Paul Horn GmbH

HORN USA

In 1997, Horn USA was established in Franklin, Tennessee with a clear purpose: deliver world-class precision tooling with true local support for North American manufacturers.

Today, we manufacture in the United States, provide hands-on local engineering, and work side-by-side with customers from concept to finished part. Our team responds quickly, collaborates closely, and delivers solutions built for the demands of American shops.

Backed by the global strength of the HORN Group, we pair advanced R&D and cutting-edge technology with fast, US-based production, including programs like Greenline, where eligible US-made special inserts ship within five working days of design approval.



Chad King
CEO
Horn USA

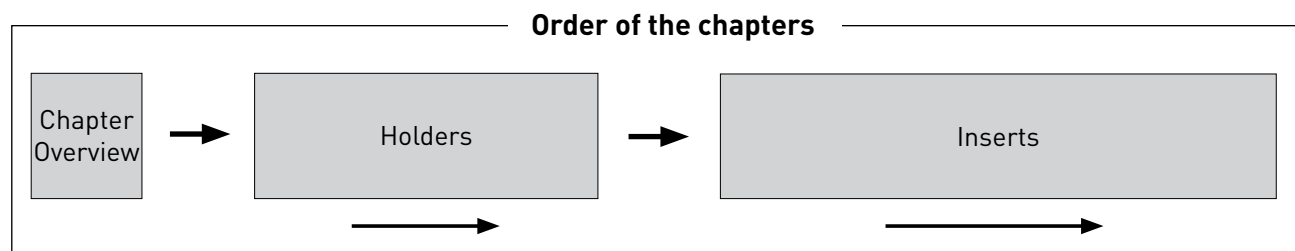


Mike Csizmar
CSO
Horn USA

General Information

How to find products:

Products are shown in a specific order inside of each chapter.



How to choose tools:

- Delivery times
 - ▲ in stock
 - Δ 2 weeks
- Use for material groups
 - recommended
 - suitable
 - not recommended

How to match inserts and holders:

All Horn inserts and toolholders use a connection code system to indicate compatibility between inserts and holders. This code describes the type of insert seat/interface between the insert and holder. (HIS and HWS)
 The same connection code system is used for our modular holders, where the code identifies compatibility between the base holder and cassette. (HMS and HWS)

HIS = Horn Insert Side
HWS = Horn Interface Holder Side
HMS = Horn Interface Machine Side

HIS	↔	HWS
HMS	↔	HWS

Example insert:

Part number	d	l_1	l_2	D_{min}	HWS
SB105.0016.1.01.IK	16	73	50	6	105125
SB105.0020.1.01.IK	20	73	50	6	105125

Example toolholder:

Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0210.2.08.A2	2.11	7	30	12	18	.35	6	105125	▲	▲
N105.0310.2.10.A2	3.11	7	30	12	18	.35	6.5	105125	▲	▲
N105.0310.2.13.A2	3.11	7	30	12	18	.5	6.5	105125	▲	▲

Correct Match



Tool Type

Broaching Insert

Tool Group

N105 / N110

A Chapter

C11 **.A.**

Tool Features/Capabilities

Product Number/SKU

Part number	w	b	l_s	l_2	l_3	r	D _{min}	HIS	Grades
N105.0210.2.08.A2	2.11	7	30	12	18	.35	6	105125	AN25 IG35
N105.0310.2.10.A2	3.11	7	30	12	18	.35	6.5	105125	▲ ▲
N105.0310.2.13.A2	3.11	7	30	12	18	.5	6.5	105125	▲ ▲
N105.0410.2.16.A2	4.14	7	30	12	18	.5	6.5	105125	▲ ▲
N110.0510.05.04.A2	5.14	-	60	25	34	.5	9	110260	▲ ▲
N110.0510.05.07.A2	5.14	-	75	40	49	.5	9	110260	▲ ▲
N110.0610.05.04.A2	6.14	-	60	25	34	.5	10	110260	Δ ▲
N110.0610.05.07.A2	6.14	-	75	40	49	.5	10	110260	Δ ▲

.A geometry is recommended for broaching units

Dimensions in mm

Product Notes

Insert-to-Holder Compatibility Code

Code	P	M	K	N	S	H
IG35	●	○	-	-	-	-

Cutting Material Recommendations:

- recommended/best
- suitable
- not recommended

Stock Information:

- ▲ in stock
- Δ orderable, 2 week delivery

Grade

N105.0210.2.08.A2 IG35

Grade (Carbide Substrate + Coating)

Product Number/SKU

21



Chapter Index

- A Broaching - Systems 105, 110, 117**
- B Solid Carbide Drills - System D1122**
- C Form Drilling - System 117**
- D High Performance Reaming - System DR**
- E Reaming System Adaptors - URMA Systems BD, BH, BT**
- F Hydraulic Expansion Holders - System HD**
- G Floating Holder - URMA System PZ**
- H Technical Instructions**

A**B****C****D****E****F****G****H**

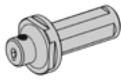




BROACHING

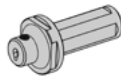
SYSTEMS 105, 110, 117

System 105 - Round Shank Holders

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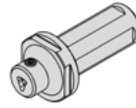
SBU105

.750"-1.000" Shank

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SBU105 (coolant)

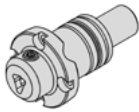
.750"-1.250" Shank

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SB105 (coolant)

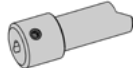
16-32mm Shank

System 105 & 110 - Broaching Machines and Units

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SB105/SB110

Broaching Machines

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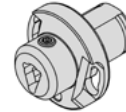
SB105

Schwarzer Machines

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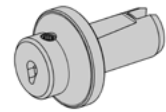
SB105/SB110

WTO Units

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SB105/SB110

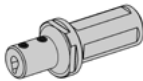
AP2R/AP3R Units

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SB105/SB110

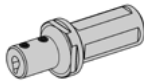
MT Marchetti Units

System 110 - Round Shank Holders

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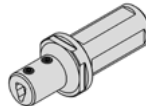
SBU110 (inch)

.750"-1.250" Shank

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SBU110 (coolant)

.750"-1.250" Shank

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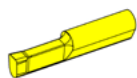
SB110 (coolant)

20-32mm Shank

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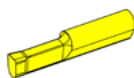
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Inch Standard Keyways



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NU105

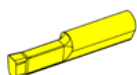
.064"-.157" Width



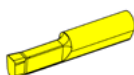
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NU110

.157"-.189" Width

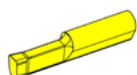
.A Geometry for Broaching Machines/Units



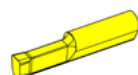
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N105/N110
C11 Tolerance



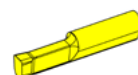
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N105/N110
D10 Tolerance



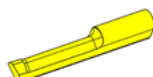
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H9 Tolerance



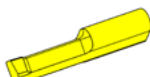
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P9 Tolerance



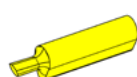
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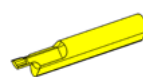
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N105/N110
Chamfer Profile



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N105/N110
Square Profile

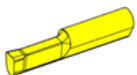


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Hexagon Profile

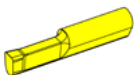


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Torx Profile

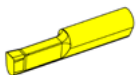
.B Geometry for Conventional Broaching



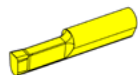
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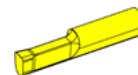
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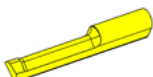
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H9 Tolerance



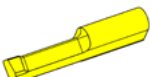
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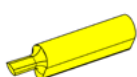
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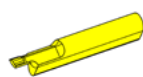
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Hexagon Profile

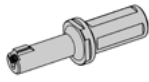


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Torx Profile

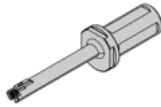
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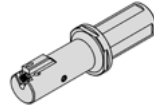
System 117 - Round Shank Holders



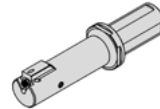
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1.000" - 1.250" Shank



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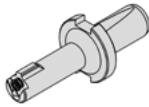


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25mm Shank

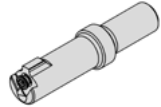


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32-40mm Shank

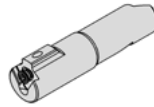
System 117 - Broaching Machines and Units



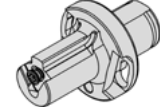
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Broaching Units



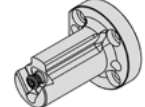
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Schwarzer Machines



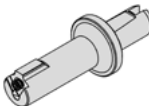
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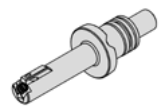
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AP2R/AP3R Units



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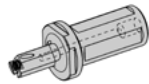


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MT Marchetti Units

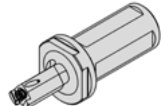


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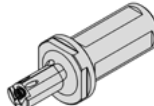
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Square Broaching



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Square Broaching



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Hexagon Broaching

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Inch Standard Keyways



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.126"-.502" Width

.A Geometry for Broaching Machines/Units



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C11 Tolerance



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Chamfer Profile



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.B Geometry for Conventional Broaching



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S117
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Chamfer Profile



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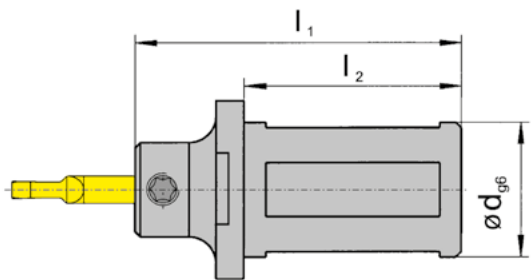
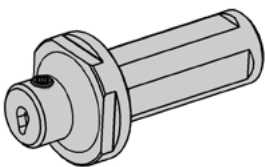
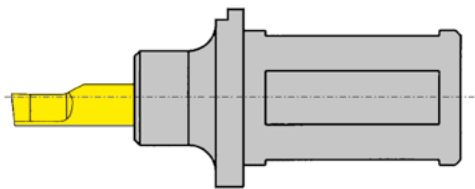
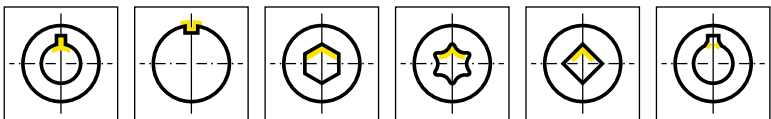
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Hexagon Profile

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A



SYSTEM 105/110



Part number	d	l ₁	l ₂	D _{min}	HWS
SBU105.0750.1.01	.750	2.874	1.969	.236	105125
SBU105.1000.1.01	1.000	2.874	1.969	.236	105125

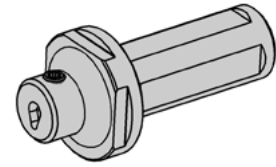
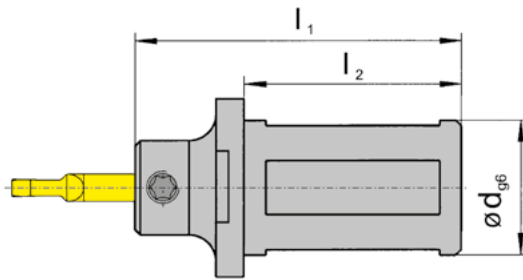
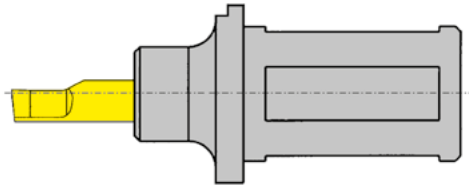
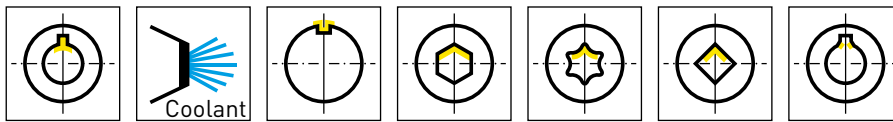
Clamping length of inserts = .472"

Dimensions in inch



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SBU105...	6.075T15P	T15PQ	5 Nm



Part number	d	l_1	l_2	D_{min}	HWS
SBU105.0750.1.01.IK	.750	2.874	1.969	.236	105125
SBU105.1000.1.01.IK	1.000	2.874	1.969	.236	105125
SBU105.1250.1.01.IK	1.250	2.874	1.969	.236	105125

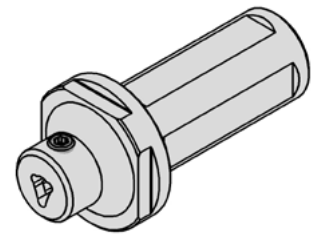
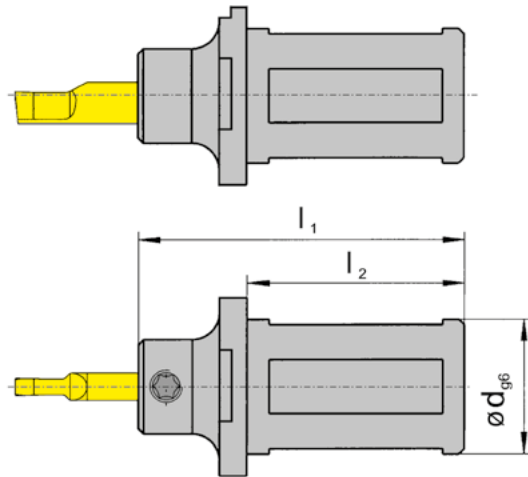
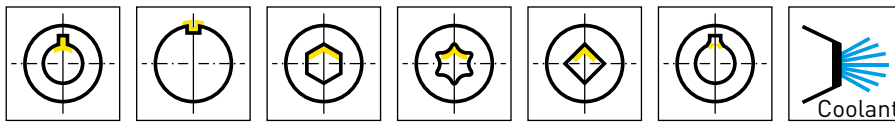
Clamping length of inserts = .472"

Dimensions in inch



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SBU105...	6.075T15P	T15PQ	5 Nm



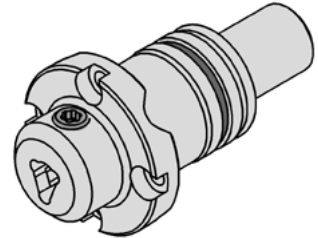
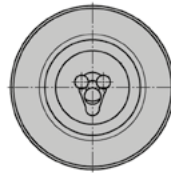
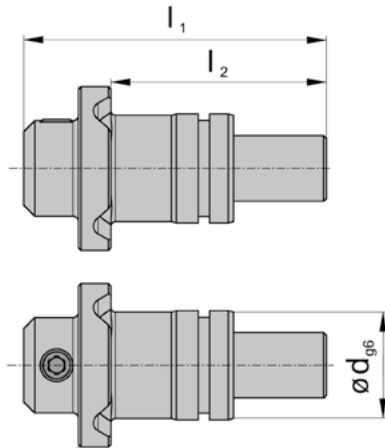
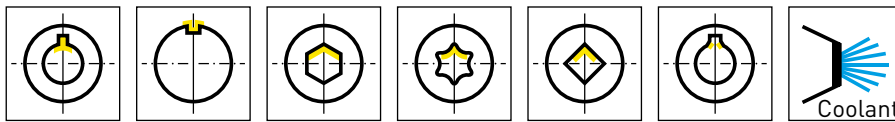
Part number	d	l ₁	l ₂	D _{min}	HWS
SB105.0016.1.01.IK	16	73	50	6	105125
SB105.0020.1.01.IK	20	73	50	6	105125
SB105.0022.1.01.IK	22	73	50	6	105125
SB105.0025.1.01.IK	25	73	50	6	105125
SB105.0032.1.01.IK	32	73	50	6	105125

Clamping length of inserts = 12mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Picture = System SB105

Part number	d	l ₁	l ₂	D _{min}	HWS	HMS
SB105.0020.E5.01.IK	20	55.5	39.5	6	105125	Benz
SB110.0020.E5.02.IK	20	70	39.5	9	110260	Benz

only usable for broaching devices EWSP20, BENZ LinA 4.0 with IK

Clamping length of inserts

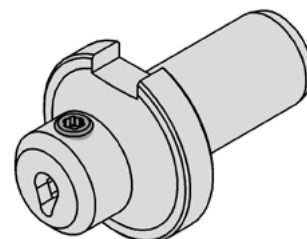
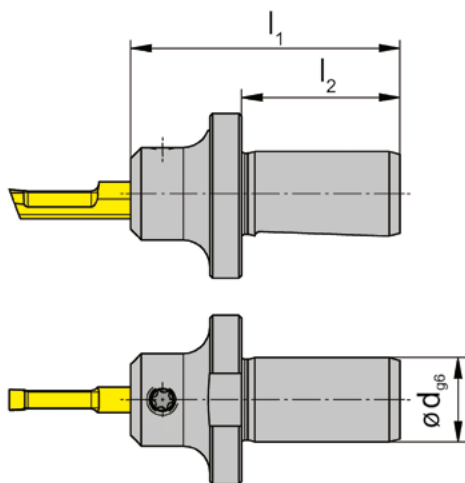
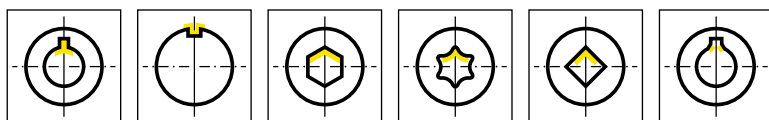
Type 105 = 12 mm

Type 110 = 26 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Picture = System SB105

Part number	d	l ₁	l ₂	D _{min}	HWS	HMS
SB105.0016.E1.01	16	51	30	6	105125	Benz
SB110.0016.E1.02	16	72	30	9	110260	Benz

only usable for broaching devices EWS-Slot, BENZ LinA

Clamping length of inserts

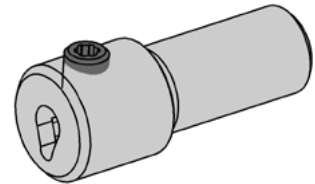
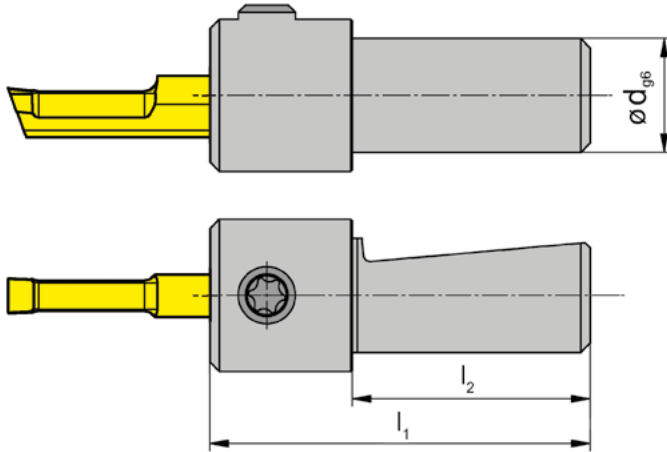
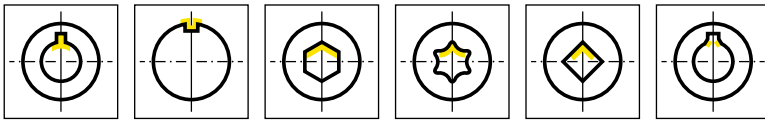
Type 105 = 12 mm

Type 110 = 26 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Part number	d	l_1	l_2	D_{min}	HWS	HMS
B105.0012.0220	12	40	25	6	105125	Schwarzer

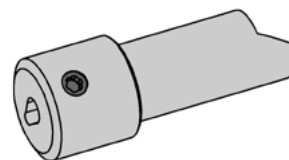
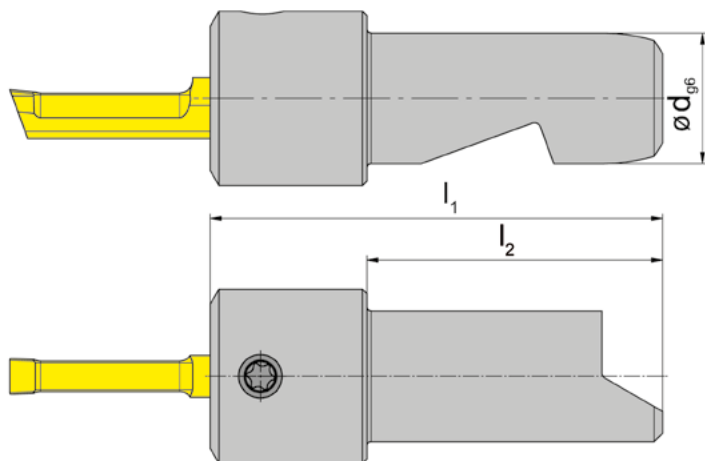
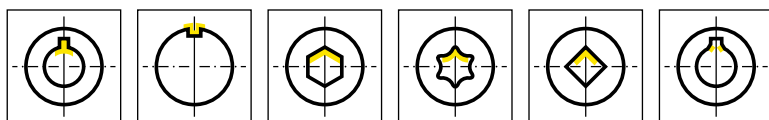
for broaching device Schwarzer

Clamping length of inserts = 12 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
B105.0012.0220	6.075T15P	T15PQ	5 Nm



Picture = System SB105

Part number	d	l_1	l_2	D_{min}	HWS	HMS
SB105.0015.S1.01	15	52	34	6	105125	Schwarzer
SB110.0015.S1.02	15	66	34	9	110260	Schwarzer

for broaching device Schwarzer "2in1"

Clamping length of inserts

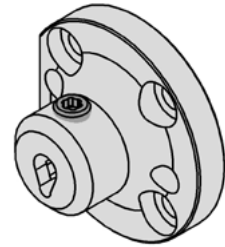
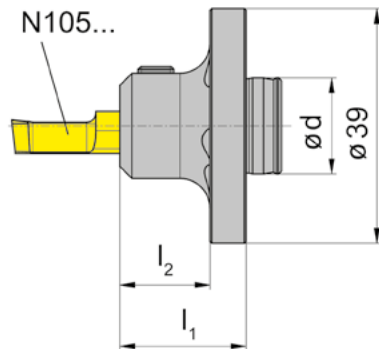
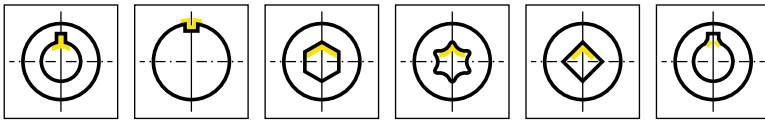
Type 105 = 12 mm

Type 110 = 26 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Picture = System SB105

Part number	d	l_1	l_2	D_{min}	HWS	HMS
SB105.1816.W1.01	16	21	15	6	105125	WTO-32/52
SB110.2016.W1.02	16	42	36	9	110260	WTO-32/52
SB105.1814.W3.01	14	21	14.1	6	105125	WTO-26
SB110.2014.W3.01	14	34	27.1	9	110260	WTO-26

for broaching device WTO

Clamping length of inserts

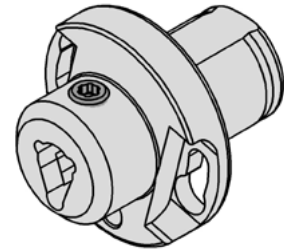
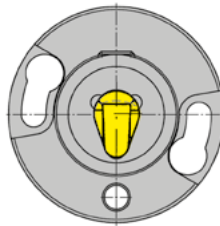
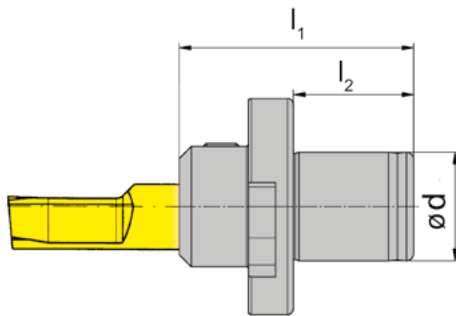
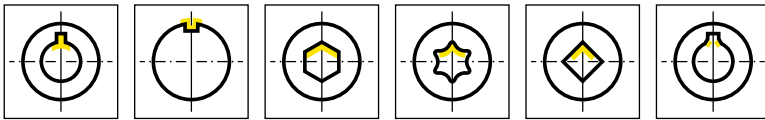
Type 105 = 12 mm

Type 110 = 26 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Picture = System SB105

Part number	d	l_1	l_2	D_{min}	HWS	HMS
SB105.0018.A.01	18	38	20	6	105125	AR2P
SB110.0018.A.01	18	39	20	6	110260	AR2P
SB110.0018.A.02	18	52	20	6	110260	AR2P

for broaching device AP2R/AP3R

Clamping length of inserts

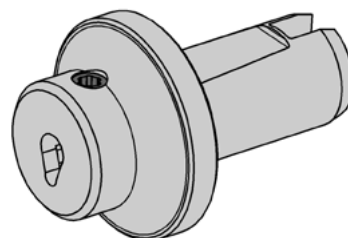
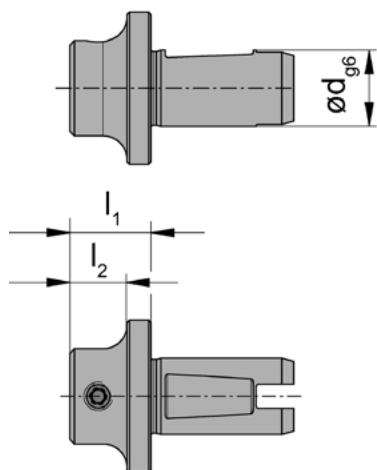
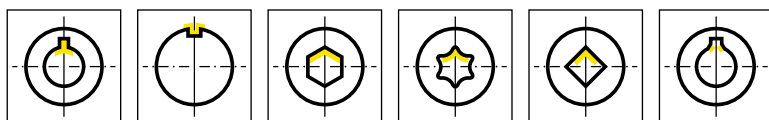
Type 105 = 12 mm

Type 110 = 26 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Part number	d	l_1	l_2	D_{min}	HWS	HMS
SB105.0016.MT1.01	16	17	12	6	105125	MT
SB110.0016.MT1.02	16	31	26	10	110260	MT

for broaching device MT Marchetti

Clamping length of inserts

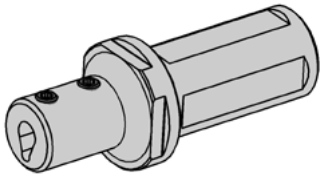
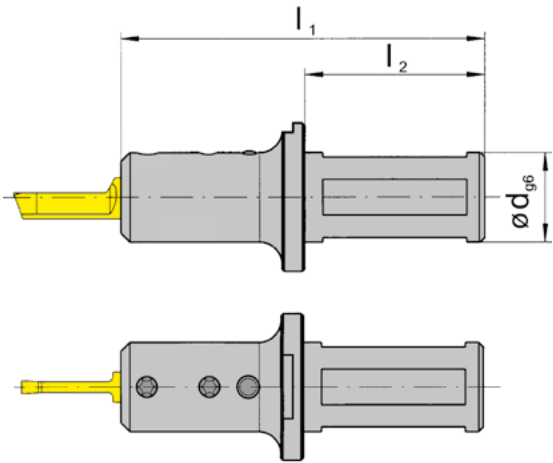
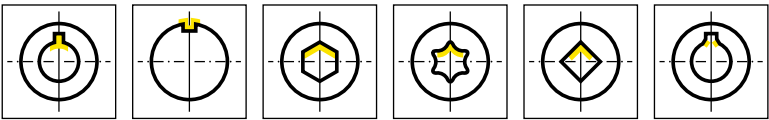
Type 105 = 12 mm

Type 110 = 26 mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB105...	6.075T15P	T15PQ	5 Nm



Part number	d	l ₁	l ₂	D _{min}	HWS
SBU110.0750.1.02.IK	.750	3.465	1.969	.354	110260
SBU110.1000.1.02.IK	1.000	3.465	1.969	.354	110260
SBU110.1250.1.02.IK	1.250	3.465	1.969	.354	110260

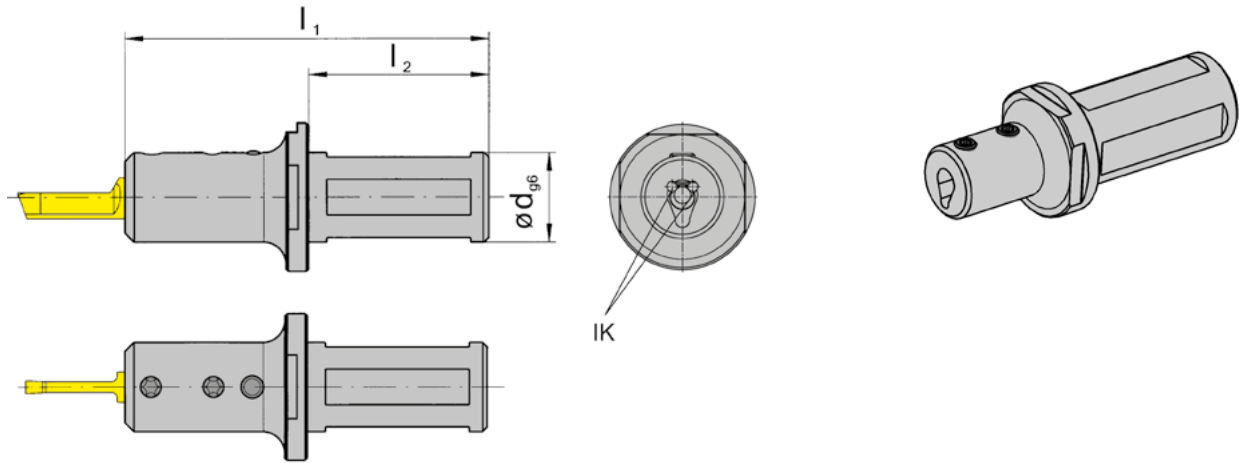
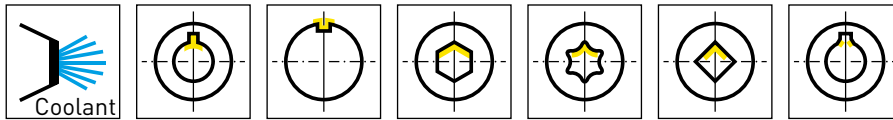
Clamping length of inserts = 1.024"

Dimensions in in



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SBU110...	6.075T15P	T15PQ	5 Nm



Part number	d	l_1	l_2	D_{min}	HWS
SBU110.0750.1.02	.750	3.465	1.969	.354	110260
SBU110.1000.1.02	1.000	3.465	1.969	.354	110260
SBU110.1250.1.02	1.250	3.465	1.969	.354	110260

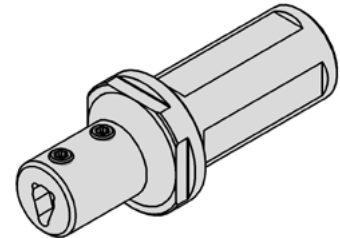
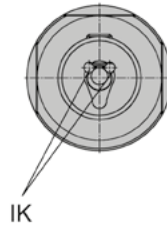
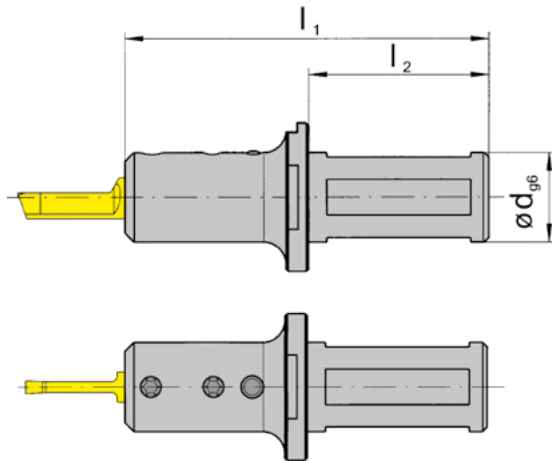
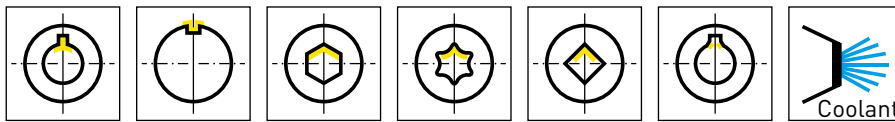
Clamping length of inserts = 1.024"

Dimensions in in



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SBU110...	6.075T15P	T15PQ	5 Nm



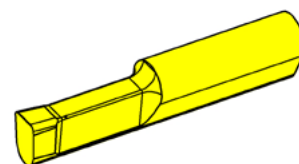
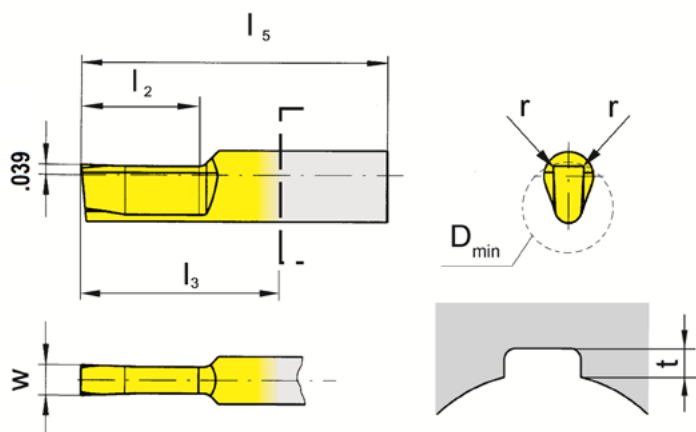
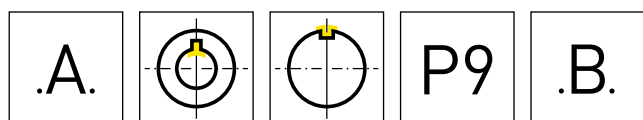
Part number	d	l_1	l_2	D_{min}	HWS
SB110.0020.1.02.IK	20	88	50	9	110260
SB110.0025.1.02.IK	25	88	50	9	110260
SB110.0032.1.02.IK	32	88	50	9	110260

Clamping length of inserts = 26mm

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SB110...	6.075T15P	T15PQ	5 Nm



Grades

▲ In stock

△ 2 weeks

Part number	w	l_5	l_2	l_3	r	D_{min}	HIS	AN25
NU105.0625.4.01.A2	.064	1.181	.472	.709	.004	.236	105125	▲
NU105.0625.4.01.B1	.064	1.181	.472	.709	.004	.236	105125	▲
NU105.0937.4.01.A2	.095	1.181	.472	.709	.004	.236	105125	▲
NU105.0937.4.01.B1	.095	1.181	.472	.709	.004	.236	105125	▲
NU105.1250.4.01.A2	.126	1.378	.591	.906	.004	.256	105125	▲
NU105.1250.4.01.B1	.126	1.378	.591	.906	.004	.256	105125	▲
NU105.1562.4.01.A2	.157	1.378	.591	.906	.004	.256	105125	▲
NU105.1562.4.01.B1	.157	1.378	.591	.906	.004	.256	105125	▲

.A geometry is recommended for broaching units

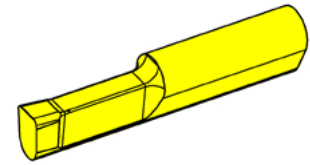
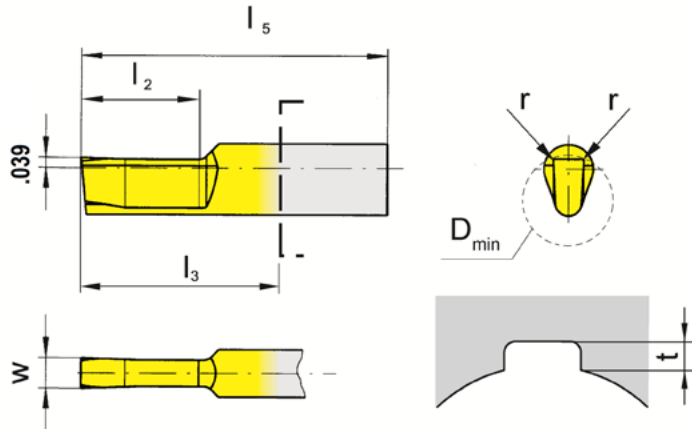
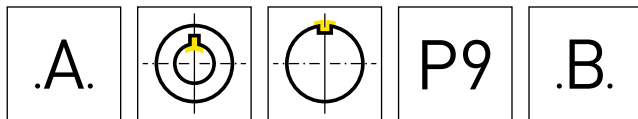
.B geometry is recommended for conventional broaching

Keyways according to Inch Standards

Dimensions inch



P	●
M	o
K	-
N	-
S	-
H	-



Grades

▲ In stock

Δ 2 weeks

Part number	w	l_5	l_2	l_3	r	D_{min}	HIS	AN25
NU110.1562.8.04.A2	.157	2.362	.984	1.339	.008	.354	105125	Δ
NU110.1562.8.04.B1	.157	2.362	.984	1.339	.008	.354	105125	▲
NU110.1562.8.07.A2	.157	2.953	1.575	1.929	.008	.354	105125	▲
NU110.1562.8.07.B1	.157	2.953	1.575	1.929	.008	.354	105125	Δ
NU110.1875.8.04.A2	.189	2.362	.984	1.339	.008	.354	105125	▲
NU110.1875.8.04.B1	.189	2.362	.984	1.339	.008	.354	105125	▲
NU110.1875.8.07.A2	.189	2.953	1.575	1.929	.008	.354	105125	▲
NU110.1875.8.07.B1	.189	2.953	1.575	1.929	.008	.354	105125	▲
								P ●
								M o
								K -
								N -
								S -
								H -

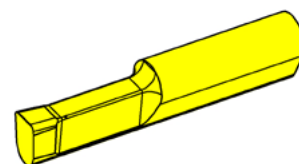
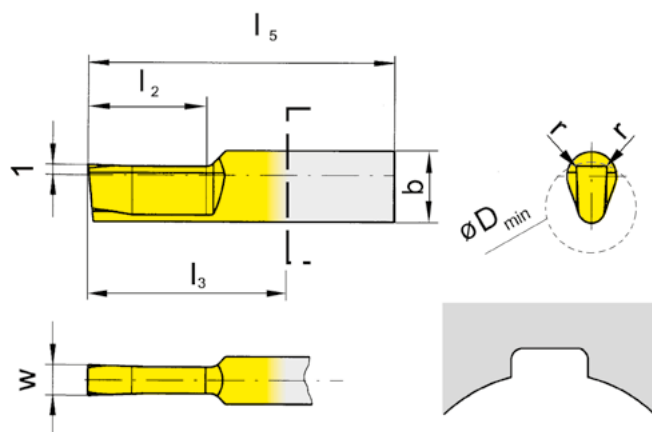
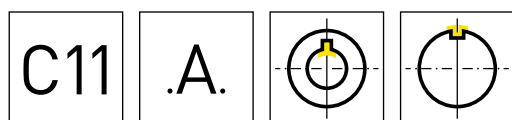
.A geometry is recommended for broaching units

.B geometry is recommended for conventional broaching

Keyways according to Inch Standards

Dimensions in inch





Grades

▲ In stock

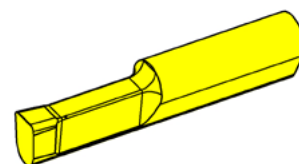
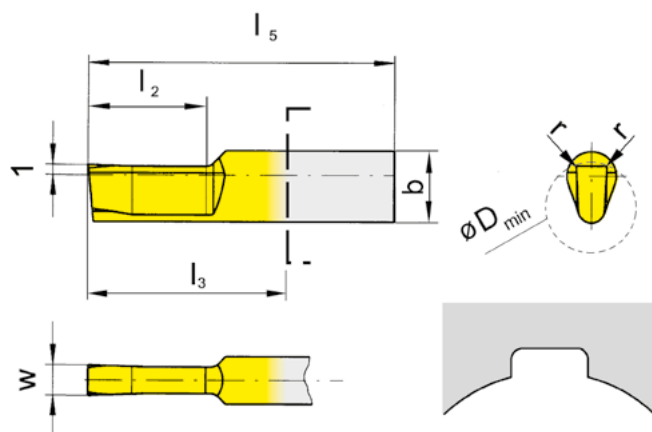
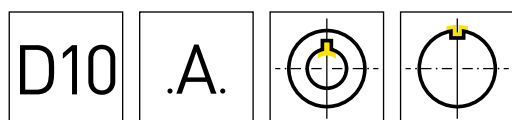
△ 2 weeks

Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	HIS	AN25	IG35
N105.0210.2.08.A2	2.11	7	30	12	18	.35	6	105125	▲	▲
N105.0310.2.10.A2	3.11	7	30	12	18	.35	6.5	105125	▲	▲
N105.0310.2.13.A2	3.11	7	30	12	18	.5	6.5	105125	▲	▲
N105.0410.2.16.A2	4.14	7	30	12	18	.5	6.5	105125	▲	▲
N110.0510.05.04.A2	5.14	-	60	25	34	.5	9	110260	▲	▲
N110.0510.05.07.A2	5.14	-	75	40	49	.5	9	110260	▲	▲
N110.0610.05.04.A2	6.14	-	60	25	34	.5	10	110260	△	▲
N110.0610.05.07.A2	6.14	-	75	40	49	.5	10	110260	△	▲

.A geometry is recommended for broaching units

Dimensions in mm

P	●	●
M	o	●
K	-	●
N	-	o
S	-	●
H	-	-

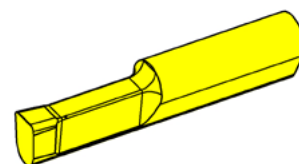
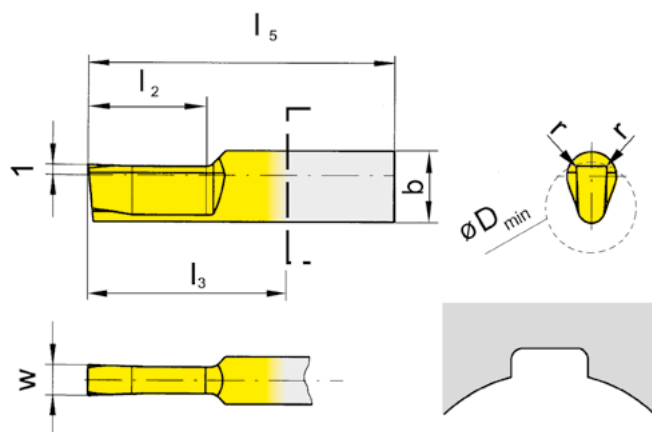
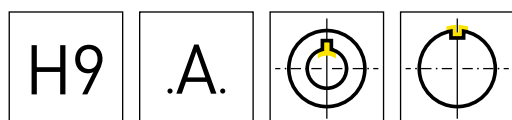


Grades

▲ In stock

△ 2 weeks

Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	HIS		AN25	IG35	
N105.0205.01.01.A2	2.055	7	30	12	18	.12	6	105125		▲	▲	
N105.0305.01.01.A2	3.055	7	30	12	18	.12	6.5	105125		▲	▲	
N105.0407.01.01.A2	4.073	7	35	15	23	.12	6.5	105125		▲	▲	
N110.0407.02.04.A2	4.073	-	60	25	34	.2	9	110260		▲	▲	
N110.0407.02.07.A2	4.073	-	75	40	49	.2	9	110260		▲	▲	
N110.0507.02.04.A2	5.073	-	60	25	34	.2	9	110260		▲	▲	
N110.0507.02.07.A2	5.073	-	75	40	49	.2	9	110260		▲	▲	
N110.0607.02.04.A2	6.073	-	60	25	34	.2	10	110260		△	▲	
N110.0607.02.07.A2	6.073	-	75	40	49	.2	10	110260		△	▲	
.A geometry is recommended for broaching units										P	●	●
Dimensions in mm										M	o	●
										K	-	●
										N	-	o
										S	-	●
										H	-	

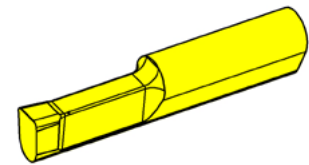
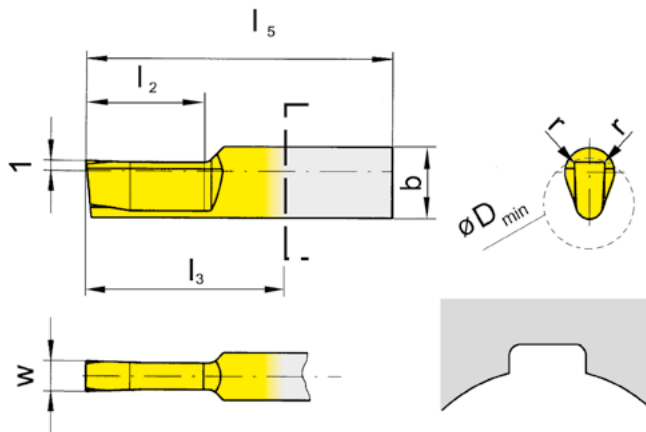
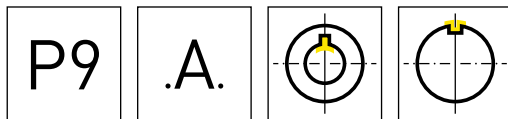


Grades

▲ In stock

△ 2 weeks

Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	HIS		AN25	IG35	
N105.0202.01.01.A2	2.02	7	30	12	18	.1	6	105125		▲	▲	
N105.0302.01.01.A2	3.02	7	30	12	18	.1	6.5	105125		▲	▲	
N105.0402.01.01.A2	4.025	7	35	15	23	.1	6.5	105125		▲	▲	
N110.0402.02.04.A2	4.025	-	60	25	34	.2	9	110260		▲	▲	
N110.0402.02.07.A2	4.025	-	75	40	49	.2	9	110260		▲	▲	
N110.0502.02.04.A2	5.025	-	60	25	34	.2	9	110260		▲	▲	
N110.0502.02.07.A2	5.025	-	75	40	49	.2	9	110260		▲	▲	
N110.0602.02.04.A2	6.025	-	60	25	34	.2	10	110260		△	▲	
N110.0602.02.07.A2	6.025	-	75	40	49	.2	10	110260		△	▲	
.A geometry is recommended for broaching units Dimensions in mm										P	●	●
										M	○	●
										K	-	●
										N	-	○
										S	-	●
										H	-	-



Grades

▲ In stock

△ 2 weeks

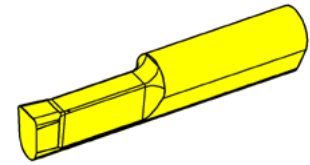
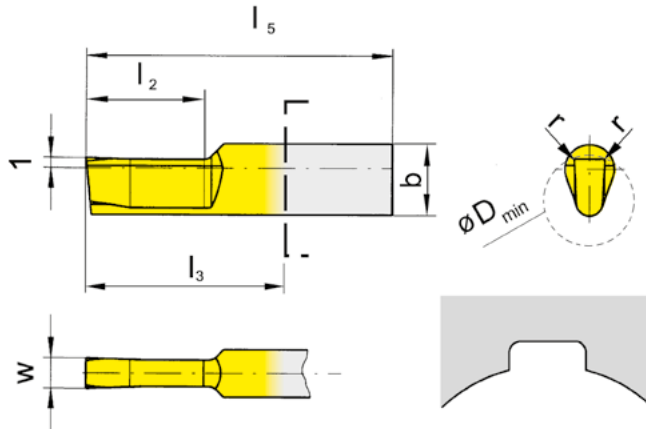
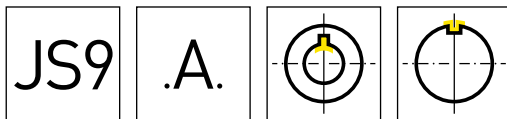
Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0198.01.01.A2	1.989	7	30	12	18	.1	6	105125	▲	▲
N105.0298.01.01.A2	2.989	7	30	12	18	.1	6.5	105125	▲	▲
N105.0397.01.01.A2	3.983	7	35	15	23	.1	6.5	105125	▲	▲
N110.0397.02.04.A2	3.983	-	60	25	34	.2	9	110260	▲	▲
N110.0397.02.07.A2	3.983	-	75	40	49	.2	9	110260	▲	▲
N110.0497.02.04.A2	4.983	-	60	25	34	.2	9	110260	▲	▲
N110.0497.02.07.A2	4.983	-	75	40	49	.2	9	110260	▲	▲
N110.0597.02.04.A2	5.983	-	60	25	34	.2	10	110260	△	▲
N110.0597.02.07.A2	5.983	-	75	40	49	.2	10	110260	△	▲

.A geometry is recommended for broaching units

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	-	●
N	-	o
S	-	●
H	-	-



Grades

▲ In stock

△ 2 weeks

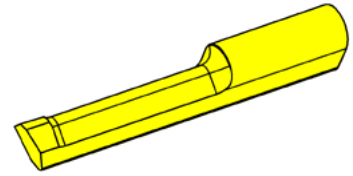
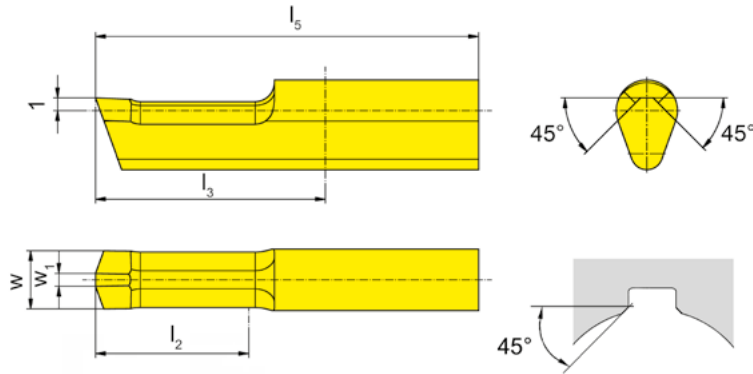
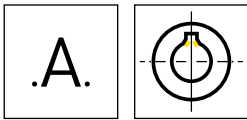
Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0200.01.01.A2	2.01	7	30	12	18	.1	6	105125	▲	▲
N105.0300.01.01.A2	3.01	7	30	12	18	.1	6.5	105125	▲	▲
N105.0400.01.01.A2	4.01	7	35	15	23	.1	6.5	105125	▲	▲
N105.0400.02.01.A2	4.01	7	35	15	23	.2	6.5	105125	▲	▲
N110.0400.02.04.A2	4.01	-	60	25	34	.2	9	110260	▲	▲
N110.0400.02.07.A2	4.01	-	75	40	49	.2	9	110260	▲	▲
N110.0500.02.04.A2	5.01	-	60	25	34	.2	9	110260	▲	▲
N110.0500.02.07.A2	5.01	-	75	40	49	.2	9	110260	▲	▲
N110.0600.02.04.A2	6.01	-	60	25	34	.2	10	110260	△	▲
N110.0600.02.07.A2	6.01	-	75	40	49	.2	10	110260	△	▲

.A geometry is recommended for broaching units

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	-	●
N	-	o
S	-	●
H	-	-

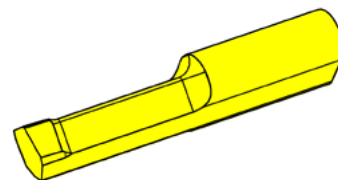
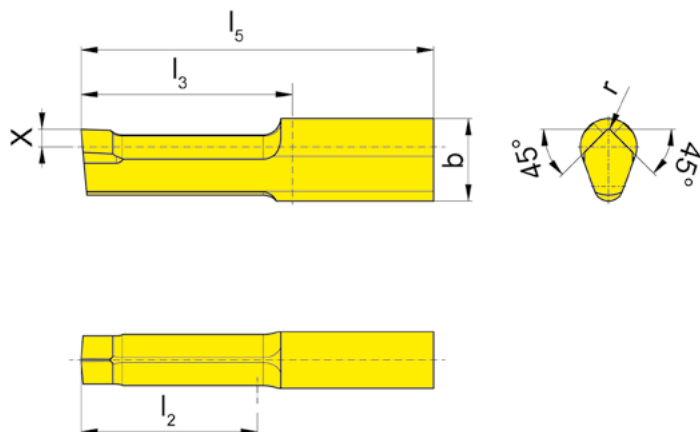


Grades

▲ In stock

Δ 2 weeks

Part number	w	b	w ₁	l ₅	l ₂	l ₃	D _{min}	HIS		AN25	IG35
N105.4545.2.6.A1	4.5	7	1	30	12	18	6	105125		▲	▲
N110.4545.4.9.A1	6.3	-	2	60	25	34	9	110260		▲	▲
N110.4545.7.9.A1	6.3	-	2	75	40	49	9	110260		▲	▲
.A geometry is recommended for broaching units									P	●	●
For chamfering broached edges									M	o	●
									K	-	●
									N	-	o
									S	-	●
Dimensions in mm									H	-	-

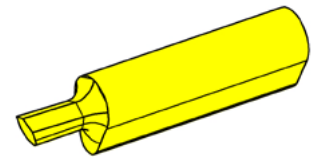
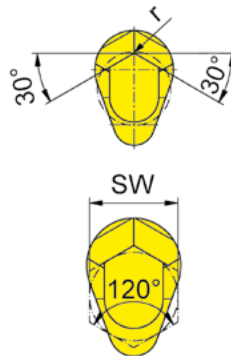
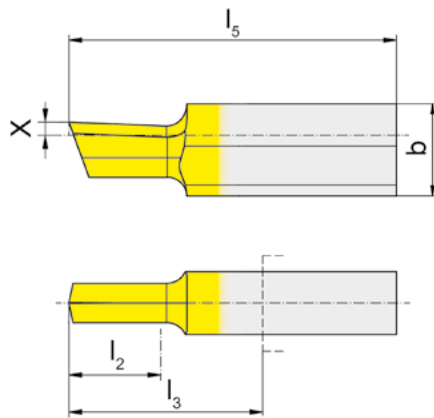
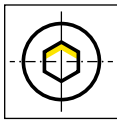
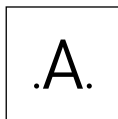


Grades

▲ In stock

△ 2 weeks

Part number	SW	b	l_5	l_2	l_3	r	Pilot diameter	X	HIS		AN25	IG35
N105.SQ.0405.1.A1	4-5	7	25	10	13	.2	.1	1.5	105125	▲	▲	▲
N105.SQ.0506.1.A1	5-6	7	30	12	18	.2	.1	1.5	105125	▲	▲	▲
N105.SQ.0608.2.A1	6-8	7	30	15	18	.2	.1	1.5	105125	▲	▲	▲
N110.SQ.0810.2.A1	8-10	-	45	15	19	.2	.1	2.5	110260	▲	▲	▲
N110.SQ.1013.2.A1	10-13	-	45	15	19	.2	.2	2.5	110260	▲	▲	▲
.A geometry is recommended for broaching units										P	●	●
For broaching square features										M	o	●
Dimensions in mm										K	-	●
										N	-	o
										S	-	●
										H	-	-



Grades

▲ In stock

△ 2 weeks

Part number	SW	l_5	l_2	l_3	r	Pilot diameter	X	HIS	AN25	IG35
N105.SW20.20.01.A1	2.0-2.0	25	4	13	0.05	SW	1	105125	▲	▲
N105.SW25.25.01.A1	2.5-2.9	25	4	13	0.05	SW	1	105125	▲	▲
N105.SW30.30.01.A1	2.9-3.5	25	4.5	13	0.05	SW	1	105125	▲	▲
N105.SW35.35.01.A1	3.5-4.0	25	5.5	13	0.05	SW	1	105125	▲	▲
N105.SW40.40.01.A1	4.0-4.5	25	6	13	0.1	SW	1	105125	▲	▲
N105.SW45.45.01.A1	4.5-5.0	25	7	13	0.1	SW	1	105125	▲	▲
N105.SW56.56.01.A1	5.0-8.0	25	9	13	0.1	SW	1	105125	▲	▲
N105.SW80.80.01.A1	8.0-10.0	30	12	18	0.1	SW+0.1	1	105125	▲	▲
N110.SW14.14.03.A1	10.0-14.0	55	20	29	0.2	SW+0.1	1.5	110260	▲	▲
N110.SW16.16.04.A1	14.0-16.5/ 16.8-18.0	55	25	29	0.2	SW+0.1/ SW+0.2	2	110260	▲	▲

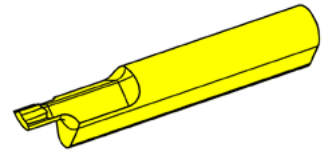
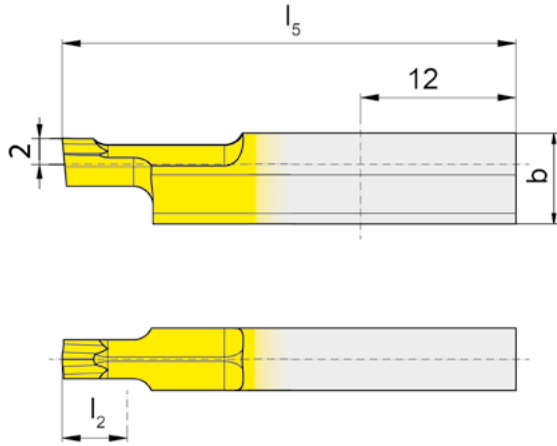
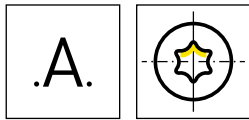
.A = Recommended for broaching units

.B = Recommended for conventional broaching

For broaching hexagonal features

Dimensions in mm

P	●	-
M	○	●
K	-	-
N	-	-
S	-	●
H	-	-

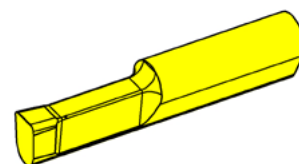
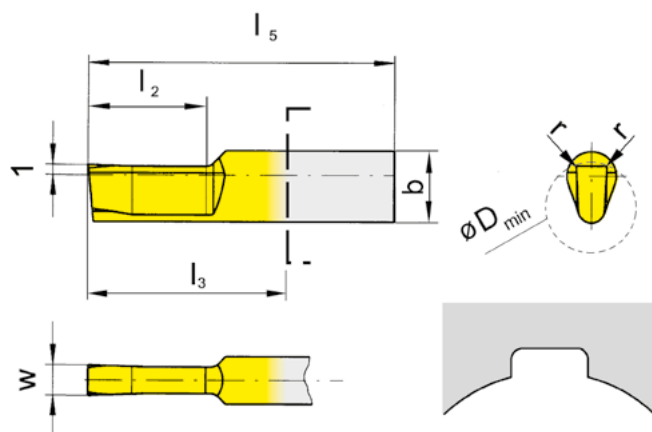
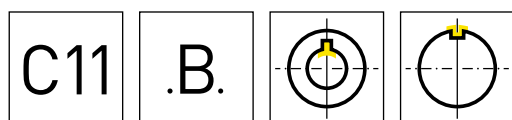


Part number	Torx	b	l_5	l_2	Pilot diameter	HIS		AN25	IG35
N105.TX15.24.03.A1	T15	7	35	4	2.3	105125		▲	▲
N105.TX20.28.03.A1	T20	7	35	4	2.8	105125		▲	▲
N105.TX25.32.03.A1	T25	7	35	5	3.1	105125		▲	▲
N105.TX30.40.03.A1	T30	7	35	5	4	105125		▲	▲
							P	●	●
							M	o	●
							K	-	●
							N	-	o
							S	-	●
							H	-	-

.A geometry is recommended for broaching units

For broaching torx features

Dimensions in mm



Grades

▲ In stock

△ 2 weeks

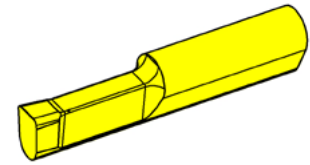
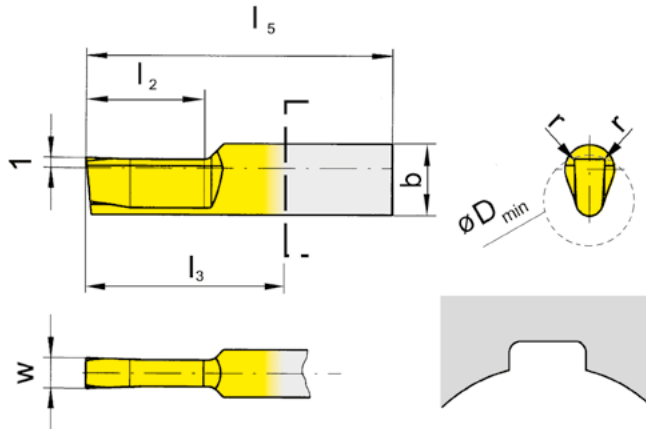
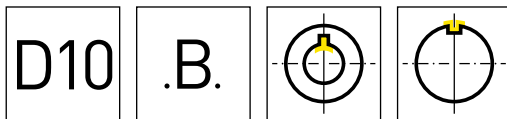
Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0210.2.08.B1	2.11	7	30	12	18	.35	6	105125	▲	▲
N105.0310.2.10.B1	3.11	7	30	12	18	.35	6.5	105125	▲	▲
N105.0310.2.13.B1	3.11	7	30	12	18	.5	6.5	105125	▲	▲
N105.0410.2.16.B1	4.14	7	30	12	18	.5	6.5	105125	▲	▲
N110.0410.05.04.B1	4.14	-	60	25	34	.5	9	110260	▲	▲
N110.0410.05.07.B1	4.14	-	75	40	49	.5	9	110260	▲	▲
N110.0510.05.04.B1	5.14	-	60	25	34	.5	9	110260	▲	▲
N110.0510.05.07.B1	5.14	-	75	40	49	.5	9	110260	▲	▲
N110.0610.05.04.B1	6.14	-	60	25	34	.5	10	110260	△	▲
N110.0610.05.07.B1	6.14	-	75	40	49	.5	10	110260	△	▲

.B geometry is recommended for conventional broaching

Keyways according to DIN138

Dimensions in mm

P	●	●
M	o	●
K	-	●
N	-	o
S	-	●
H	-	-

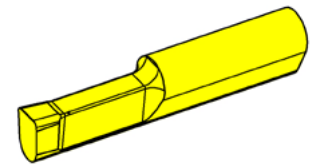
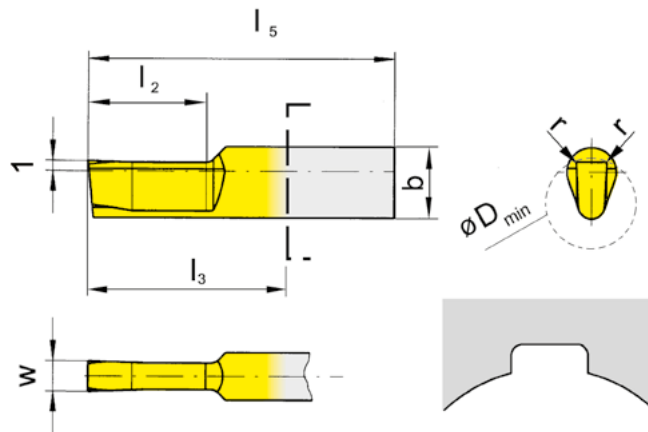
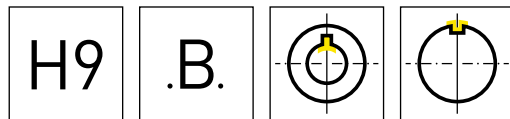


Grades

▲ In stock

△ 2 weeks

Part number	w	b	l ₅	l ₂	l ₃	r	D _{min}	HIS		AN25	IG35	
N105.0205.01.01.B1	2.055	7	30	12	18	.12	6	105125		▲	▲	
N105.0305.01.01.B1	3.055	7	30	12	18	.12	6.5	105125		▲	▲	
N105.0407.01.01.B1	4.073	7	35	15	23	.12	6.5	105125		▲	▲	
N110.0407.02.04.B1	4.073	-	60	25	34	.2	9	110260		▲	▲	
N110.0407.02.07.B1	4.073	-	75	40	49	.2	9	110260		▲	▲	
N110.0507.02.04.B1	5.073	-	60	25	34	.2	9	110260		▲	▲	
N110.0507.02.07.B1	5.073	-	75	40	49	.2	9	110260		▲	▲	
N110.0607.02.04.B1	6.073	-	60	25	34	.2	10	110260		△	▲	
N110.0607.02.07.B1	6.073	-	75	40	49	.2	10	110260		△	▲	
.B geometry is recommended for conventional broaching										P	●	●
Dimensions in mm										M	o	●
										K	-	●
										N	-	o
										S	-	●
										H	-	-

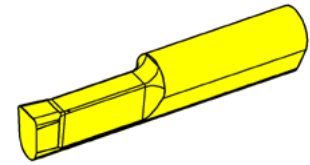
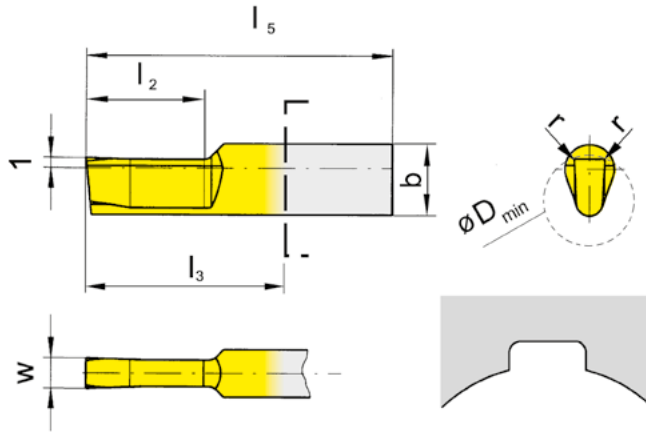
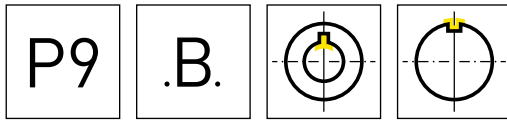


Grades

▲ In stock

△ 2 weeks

Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0202.01.01.B1	2.02	7	30	12	18	.1	6	105125	▲	▲
N105.0302.01.01.B1	3.02	7	30	12	18	.1	6.5	105125	▲	▲
N105.0402.01.01.B1	4.025	7	35	15	23	.1	6.5	105125	▲	▲
N110.0402.02.04.B1	4.025	-	60	25	34	.2	9	110260	▲	▲
N110.0402.02.07.B1	4.025	-	75	40	49	.2	9	110260	▲	▲
N110.0502.02.04.B1	5.025	-	60	25	34	.2	9	110260	▲	▲
N110.0502.02.07.B1	5.025	-	75	40	49	.2	9	110260	▲	▲
N110.0602.02.04.B1	6.025	-	60	25	34	.2	10	110260	△	▲
N110.0602.02.07.B1	6.025	-	75	40	49	.2	10	110260	△	▲
.B geometry is recommended for conventional broaching										
Dimensions in mm										
P	●	●								
M	o	●								
K	-	●								
N	-	o								
S	-	●								
H	-	-								

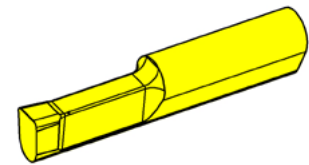
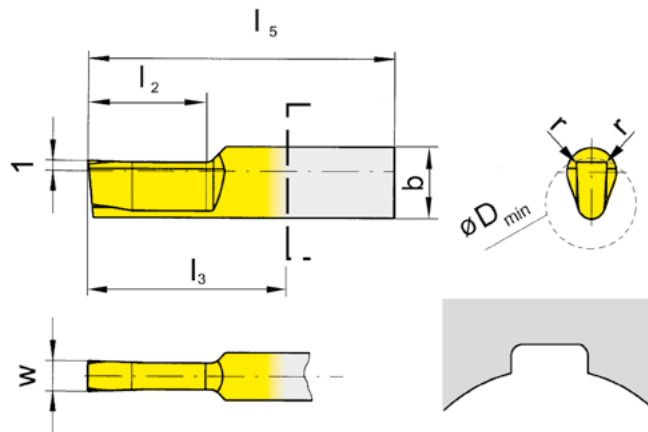
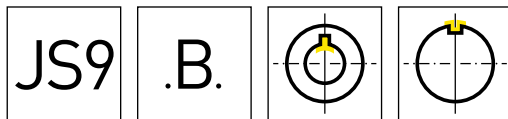


Grades

▲ In stock

△ 2 weeks

Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0198.01.01.B1	1.982	7	30	12	18	.1	6	105125	▲	▲
N105.0298.01.01.B1	2.989	7	30	12	18	.1	6.5	105125	▲	▲
N105.0397.01.01.B1	3.983	7	35	15	23	.1	6.5	105125	▲	▲
N110.0397.02.04.B1	3.983	-	60	25	34	.2	9	110260	▲	▲
N110.0397.02.07.B1	3.983	-	75	40	49	.2	9	110260	▲	▲
N110.0497.02.04.B1	4.983	-	60	25	34	.2	9	110260	▲	▲
N110.0497.02.07.B1	4.983	-	75	40	49	.2	9	110260	▲	▲
N110.0597.02.04.B1	5.983	-	60	25	34	.2	10	110260	△	▲
N110.0597.02.07.B1	5.983	-	75	40	49	.2	10	110260	△	▲
.B geometry is recommended for conventional broaching									P	●
Keyways according to DIN6885									M	o
Dimensions in mm									K	-
									N	-
									S	-
									H	-



Grades

▲ In stock

△ 2 weeks

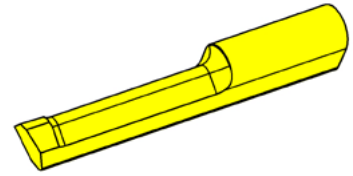
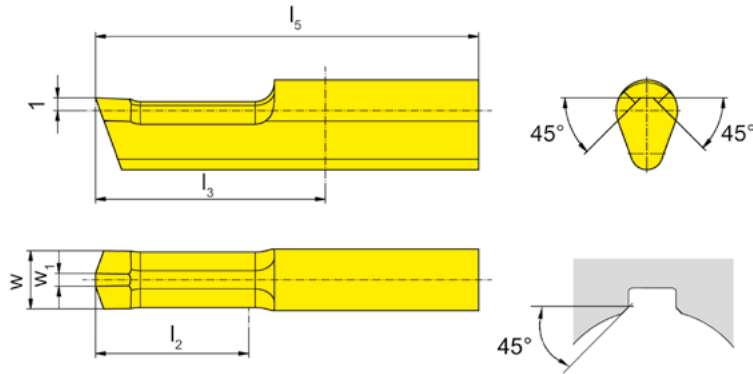
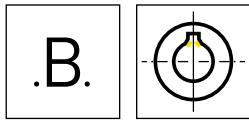
Part number	w	b	l_5	l_2	l_3	r	D_{min}	HIS	AN25	IG35
N105.0200.01.01.B1	2.01	7	30	12	18	.1	6	105125	▲	▲
N105.0300.01.01.B1	3.01	7	30	12	18	.1	6.5	105125	▲	▲
N105.0400.01.01.B1	4.01	7	35	15	23	.1	6.5	105125	▲	▲
N105.0400.02.01.B1	4.01	7	35	15	23	.2	6.5	105125	▲	▲
N110.0400.02.04.B1	4.01	-	60	25	34	.2	9	110260	▲	▲
N110.0400.02.07.B1	4.01	-	75	40	49	.2	9	110260	▲	▲
N110.0500.02.04.B1	5.01	-	60	25	34	.2	9	110260	▲	▲
N110.0500.02.07.B1	5.01	-	75	40	49	.2	9	110260	▲	▲
N110.0600.02.04.B1	6.01	-	60	25	34	.2	10	110260	△	▲
N110.0600.02.07.B1	6.01	-	75	40	49	.2	10	110260	△	▲

.B geometry is recommended for conventional broaching

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	-	●
N	-	o
S	-	●
H	-	-



Grades

▲ In stock

△ 2 weeks

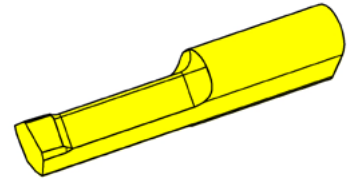
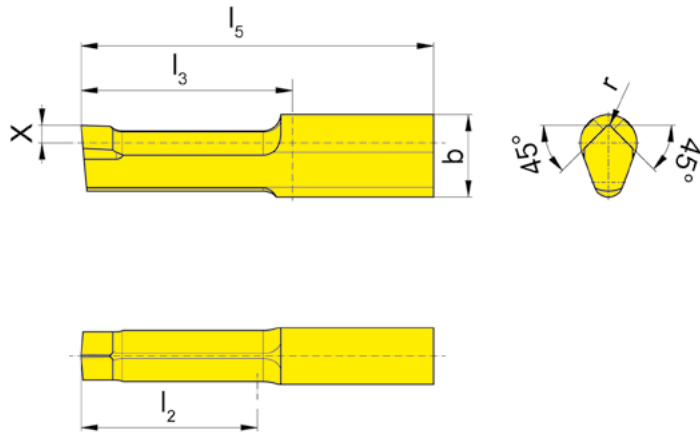
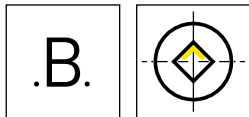
Part number	w	b	w ₁	l ₅	l ₂	l ₃	D _{min}	HIS	AN25	IG35
N105.4545.2.6.B1	4.5	7	1	30	12	18	6	105125	▲	▲
N105.4545.3.6.B1	4.5	7	1	35	20	23	6	105125	▲	▲
N110.4545.4.9.B1	6.3	-	2	60	25	34	9	110260	▲	▲
N110.4545.7.9.B1	6.3	-	2	75	40	49	9	110260	▲	▲

.B geometry is recommended for conventional broaching

For chamfering broached edges

Dimensions in mm

P	●	●
M	o	●
K	-	●
N	-	o
S	-	●
H	-	-

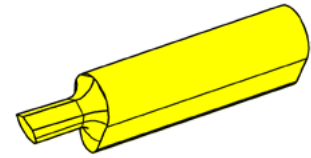
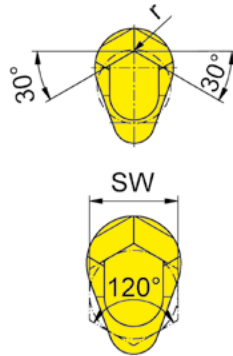
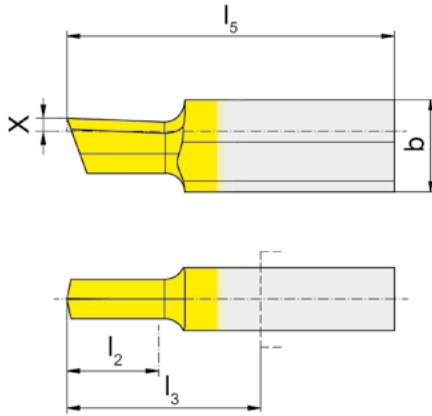
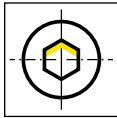
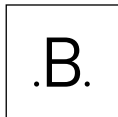


Grades

▲ In stock

△ 2 weeks

Part number	SW	b	l ₅	l ₂	l ₃	r	Pilot diameter	X	HIS		AN25	IG35	
N105.SQ.0405.1.B1	4-5	7	25	10	13	.2	.1	1.5	105125		▲	▲	
N105.SQ.0506.1.B1	5-6	7	30	12	18	.2	.1	1.5	105125		▲	▲	
N105.SQ.0608.2.B1	6-8	7	30	15	18	.2	.1	1.5	105125		▲	▲	
N110.SQ.0810.2.B1	8-10	-	45	15	19	.2	.1	2.5	110260		▲	▲	
N110.SQ.1013.2.B1	10-13	-	45	15	19	.2	.2	2.5	110260		▲	▲	
.B geometry is recommended for conventional broaching											P	●	●
For broaching square features											M	○	●
											K	-	●
											N	-	○
											S	-	●
Dimensions in mm											H	-	-



Grades

▲ In stock

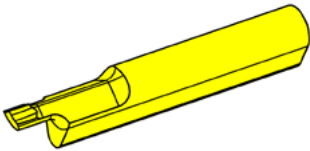
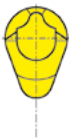
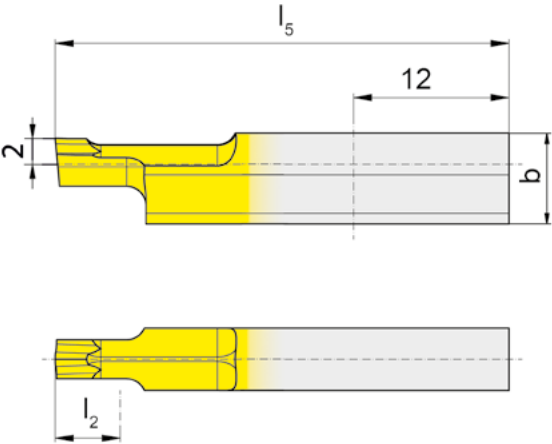
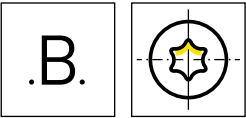
△ 2 weeks

Part number	SW	l_5	l_2	l_3	r	X	HIS	AN25	IG35
N105.SW20.20.01.B1	2.0-2.0	25	4	13	.05	1	105125	▲	▲
N105.SW25.25.01.B1	2.5-2.9	25	4	13	.05	1	105125	▲	▲
N105.SW30.30.01.B1	2.9-3.5	25	4.5	13	.05	1	105125	▲	▲
N105.SW35.35.01.B1	3.5-4.0	25	5.5	13	.05	1	105125	▲	▲
N105.SW40.40.01.B1	4.0-4.5	25	6	13	.1	1	105125	▲	▲
N105.SW45.45.01.B1	4.5-5.0	25	7	13	.1	1	105125	▲	▲
N105.SW56.56.01.B1	5.0-8.0	25	9	13	.1	1	105125	▲	▲
N105.SW80.80.01.B1	8.0-10.0	30	12	18	.1	1	105125	▲	▲
N110.SW14.14.03.B1	10-14	55	20	29	.2	1.5	110260	▲	▲
N110.SW16.16.04.B1	14-18	55	25	29	.2	2	110260	▲	▲
								P	●
								M	○
								K	-
								N	-
								S	-
								H	-

.B geometry is recommended for conventional broaching

For broaching hexagonal features

Dimensions in mm



Grades

▲ In stock

Δ 2 weeks

Part number	Torx	b	l ₅	l ₂	Pilot diameter	HIS		AN25	IG35
N105.TX15.24.03.B1	T15	7	35	4	2.3	105125		▲	▲
N105.TX20.28.03.B1	T20	7	35	4	2.8	105125		▲	▲
N105.TX25.32.03.B1	T25	7	35	5	3.1	105125		▲	▲
N105.TX30.40.03.B1	T30	7	35	5	4	105125		▲	▲
								P	● -
								M	o ●
								K	- -
								N	- -
								S	- ●
								H	- -

.A = Recommended for broaching units
.B = Recommended for conventional broaching

For broaching torx features

Dimensions in mm

Broaching

Nw	Tolerance	Width	D _{min}	l ₂	Insert ...A2/...B1	Toolholder
2	C11	2.11	6	12	N105.0210.2.08. ...	SB105...
3	C11	3.11	6.5	12	N105.0310.2.10. ...	SB105...
3	C11	3.11	6.5	12	N105.0310.2.13. ...	SB105...
4	C11	4.14	6.5	12	N105.0410.2.16. ...	SB105...
4	C11	4.14	9	25	N110.0410.05.04. ...	SB110...
4	C11	4.14	9	40	N110.0410.05.07. ...	SB110...
5	C11	5.14	9	25	N110.0510.05.04. ...	SB110...
5	C11	5.14	9	40	N110.0510.05.07. ...	SB110...
6	C11	6.14	10	25	N110.0610.05.04. ...	SB110...
6	C11	6.14	10	40	N110.0610.05.07. ...	SB110...
2	D10	2.055	6	12	N105.0205.01.01. ...	SB105...
3	D10	3.055	6.5	12	N105.0305.01.01. ...	SB105...
3	D10	4.073	6.5	15	N105.0407.01.01. ...	SB105...
4	D10	4.073	9	25	N110.0407.02.04. ...	SB105...
4	D10	4.073	9	40	N110.0407.02.07. ...	SB110...
5	D10	5.073	9	25	N110.0507.02.04. ...	SB110...
5	D10	5.073	9	40	N110.0507.02.07. ...	SB110...
6	D10	6.073	10	25	N110.0607.02.04. ...	SB110...
6	D10	6.073	10	40	N110.0607.02.07. ...	SB110...
2	H9	2.02	6	12	N105.0202.01.01. ...	SB105...
3	H9	3.02	6.5	12	N105.0302.01.01. ...	SB105...
4	H9	4.025	6.5	15	N105.0402.01.01. ...	SB105...
4	H9	4.025	9	25	N110.0402.02.04. ...	SB110...
4	H9	4.025	9	40	N110.0402.02.07. ...	SB110...
5	H9	5.025	9	25	N110.0502.02.04. ...	SB110...
5	H9	5.025	9	40	N110.0502.02.07. ...	SB110...
6	H9	6.025	10	25	N110.0602.02.04. ...	SB110...
6	H9	6.025	10	40	N110.0602.02.07. ...	SB110...
2	P9	1.982	6	12	N105.0198.01.01. ...	SB105...
3	P9	2.989	6.5	12	N105.0298.01.01. ...	SB105...
4	P9	3.983	6.5	15	N105.0397.01.01. ...	SB105...
4	P9	3.983	9	25	N110.0397.02.04. ...	SB110...
4	P9	3.983	9	40	N110.0397.02.07. ...	SB110...
5	P9	4.983	9	25	N110.0497.02.04. ...	SB110...
5	P9	4.983	9	40	N110.0497.02.07. ...	SB110...
6	P9	5.983	10	25	N110.0597.02.04. ...	SB110...
6	P9	5.983	10	40	N110.0597.02.07. ...	SB110...

Broaching

Nw	Tolerance	Width	D _{min}	l ₂	Insert ...A2/...B1	Toolholder
2	JS9	2	6	12	N105.0200.01.01. ...	SB105...
3	JS9	3	6.5	12	N105.0300.01.01. ...	SB105...
4	JS9	4	6.5	15	N105.0400.01.01. ...	SB105...
4	JS9	4	6.5	15	N105.0400.02.01. ...	SB105...
4	JS9	4.01	9	25	N110.0400.02.04. ...	SB110...
4	JS9	4.01	9	40	N110.0400.02.07. ...	SB110...
5	JS9	5.01	9	25	N110.0500.02.04. ...	SB110...
5	JS9	5.01	9	40	N110.0500.02.07. ...	SB110...
6	JS9	6.01	10	25	N110.0600.02.04. ...	SB110...
6	JS9	6.01	10	40	N110.0600.02.07. ...	SB110...

Chamfering

Width	Chamfer	D _{min}	l ₂	Insert ...A2/...B1	Toolholder
4.5	45x45	6	12	N105.4545.2.6. ...	SB105
4.5	45x45	6	20	N105.4545.3.6. ...	SB105...
6.3	45x45	9	25	N110.4545.4.9. ...	SB110...
6.3	45x45	9	40	N110.4545.7.9. ...	SB110...

Hexagonal Profile

SW	D _{min}	l ₂	Insert ...A2/...B1	Toolholder
2	2	4	N105.SW20.20.01. ...	SB105
2.5 - 2.9	2.5	4	N105.SW25.25.01. ...	SB105...
2.9 - 3.5	3	4.5	N105.SW30.30.01. ...	SB105...
3.5 - 4.0	3.5	5.5	N105.SW35.35.01. ...	SB105...
4.0 - 4.5	4	6	N105.SW40.40.01. ...	SB105...
4.5 - 5.0	4.5	7	N105.SW45.45.01. ...	SB105...
5.0 - 8.0	5	9	N105.SW56.56.01. ...	SB105...
8.0 - 10.0	6.5	12	N105.SW80.80.01. ...	SB105...
10.0 - 14.0	9	20	N110.SW14.14.03. ...	SB110...
14.0 - 16.5	9	25	N110.SW16.16.04. ...	SB110...

Square Broaching

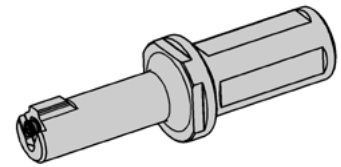
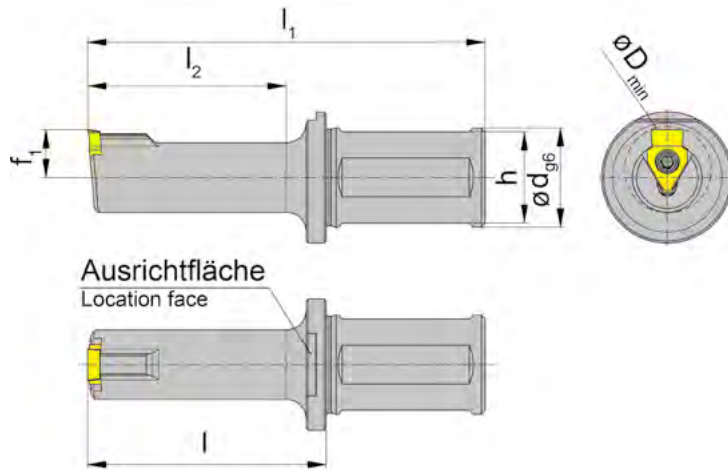
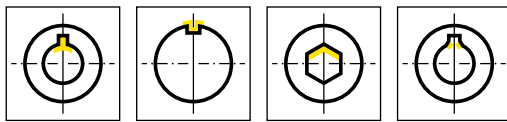
SQ	D _{min}	l ₂	Schneidplatte Insert ...A2/...B1	Klemmhalter Toolholder
4 - 5	4.1	10	N105.SQ.0405.1. ...	SB105
5 - 6	5.1	12	N105.SQ.0506.1. ...	SB105...
6 - 8	6.1	15	N105.SQ.0608.2. ...	SB105...
8 - 10	8.1	15	N110.SQ.0810.2. ...	SB110...
10 - 13	10.2	15	N110.SQ.1013.2. ...	SB110...

Torx

Torx	D _{min}	l ₂	Schneidplatte Insert ...A2/...B1	Klemmhalter Toolholder
T15	2.3	4	N105.TX15.24.03. ...	SB105
T20	2.8	4	N105.TX20.28.03. ...	SB105...
T25	3.1	5	N105.TX25.32.03. ...	SB105...
T30	4	5	N105.TX30.40.03. ...	SB105...



SYSTEM 117



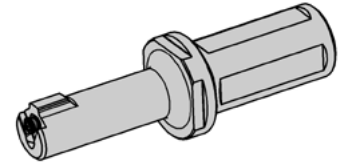
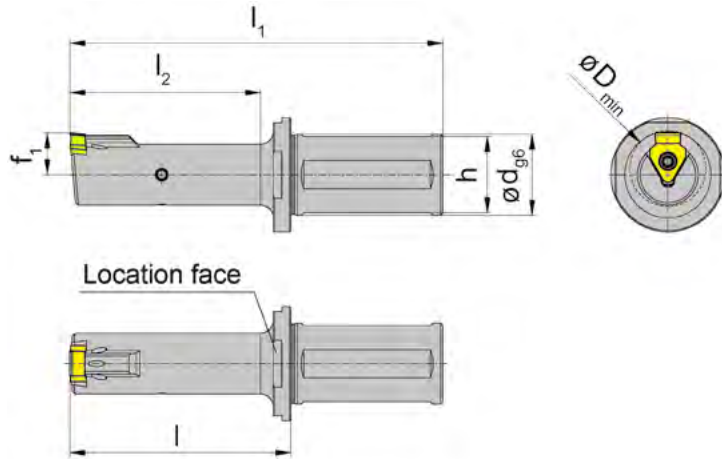
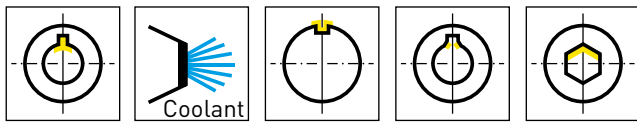
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SHU117.0100.1.10	1	.921	2.087	4.055	1.575	.669	.374	A	117A005
SHU117.0100.2.10	1	.921	2.677	4.646	2.165	.669	.374	A	117A005
SHU117.0125.1.10	1.250	1.171	2.087	4.055	1.575	.669	.374	A	117A005
SHU117.0125.1.16	1.250	1.171	2.48	4.843	1.969	1.181	.659	C	117C605
SHU117.0125.2.16	1.250	1.171	3.465	5.827	2.953	1.181	.659	C	117C605
SHU117.0125.3.16	1.250	1.171	4.449	6.811	3.937	1.181	.659	C	117C605
SHU117.0610.1.10	1	.921	2.008	3.976	1.575	.625	.425	A1	117A005
SHU117.0612.1.10	1.250	1.171	2.008	3.976	1.575	.625	.425	A1	117A005
SHU117.0910.1.10	1	.921	2.48	4.449	1.969	.866	.472	A	117A005
SHU117.0910.2.10	1	.921	3.268	5.236	2.756	.866	.472	A	117A005
SHU117.0912.1.10	1.250	1.171	2.48	4.449	1.969	.866	.472	A	117A005
SHU117.0912.2.10	1.250	1.171	3.268	5.236	2.756	.866	.472	A	117A005
SHU117.1000.1.10	1	.921	2.48	4.449	1.969	.866	.472	B	117B005
SHU117.1000.2.10	1	.921	3.268	5.236	2.756	.866	.472	B	117B005
SHU117.1250.1.10	1.250	1.171	2.48	4.449	1.969	.866	.472	B	117B005
SHU117.1250.1.16	1.250	1.171	2.48	4.843	1.969	1.496	.866	D	117D605
SHU117.1250.2.10	1.250	1.171	3.268	5.236	2.756	.866	.472	B	117B005
SHU117.1250.2.16	1.250	1.171	3.465	5.827	2.953	1.496	.866	D	117D605
SHU117.1250.3.16	1.250	1.171	4.449	6.811	3.937	1.496	.866	D	117D605
SHU117.1410.1.08	1	.921	1.654	3.622	1.181	.551	.378	F	117F805
SHU117.1410.1.3.08	1	.921	1.26	3.228	.787	.551	.378	G	117G805
SHU117.1410.2.08	1	.921	2.047	4.016	1.575	.551	.378	F	117F805
SHU117.1412.1.08	1.250	1.171	1.654	3.622	1.181	.551	.378	F	117F805
SHU117.1412.1.3.08	1.250	1.171	1.260	2.835	.787	.551	.378	G	117G805
SHU117.1412.2.08	1.250	1.171	2.047	4.016	1.575	.551	.378	F	117F805

Dimensions in inch



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SHU117...	4.09T15P	T15PQ	5 Nm
SHU117...	5.12T20P	T20PQ	6.5 Nm
SHU117.14...	030.3509.T15P	T15PQ	3.5 Nm



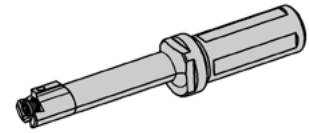
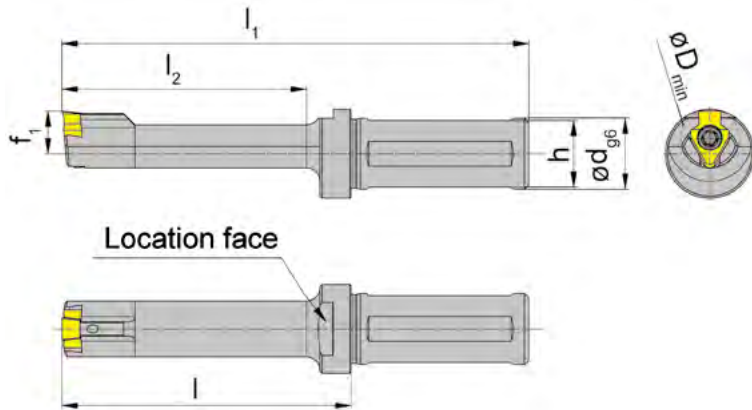
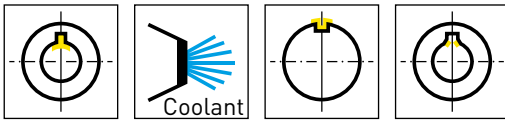
Part number	d	h	l	l ₁	l ₂	D _{min}	f ₁	Form	HWS
SHU117.0100.1.10.IK	1	.921	2.087	4.055	1.575	.669	.374	A	117A005
SHU117.0100.2.10.IK	1	.921	2.677	4.646	2.165	.669	.374	A	117A005
SHU117.0125.1.16.IK	1.250	1.171	2.48	4.843	1.969	1.181	.659	C	117C605
SHU117.0125.2.16.IK	1.250	1.171	3.465	5.827	2.953	1.181	.659	C	117C605
SHU117.0125.3.16.IK	1.250	1.171	4.449	6.811	3.937	1.181	.659	C	117C605
SHU117.0610.1.10.IK	1	.921	2.008	3.976	1.575	.625	.425	A1	117A005
SHU117.0910.1.10.IK	1	.921	2.48	4.449	1.969	.866	.472	A	117A005
SHU117.0910.2.10.IK	1	.921	3.268	5.236	2.756	.866	.472	A	117A005
SHU117.1000.1.10.IK	1	.921	2.48	4.449	1.969	.866	.472	B	117B005
SHU117.1000.2.10.IK	1	.921	3.268	5.236	2.756	.866	.472	B	117B005
SHU117.1000.LR.3.16.IK	1	.921	3.819	5.787	3.15	.417	.472	-	117F1605
SHU117.1250.1.16.IK	1.250	1.171	2.48	4.843	1.969	1.496	.866	D	117D605
SHU117.1250.2.16.IK	1.250	1.171	3.465	5.827	2.953	1.496	.866	D	117D605
SHU117.1250.3.16.IK	1.250	1.171	4.449	6.811	3.937	1.496	.866	D	117D605
SHU117.1410.1.08.IK	1	.921	1.654	3.622	1.181	.551	.378	F	117F805
SHU117.1410.1.3.08.IK	1	.921	1.260	3.228	.787	.551	.378	G	117G805
SHU117.1410.2.08.IK	1	.921	2.047	4.016	1.575	.551	.378	F	117F805
SHU117.1410.30.1.08.IK	1	.921	1.299	3.268	.787	.559	.266	-	1170805
SHU117.1610.30.1.10.IK	1	.921	1.496	3.465	.984	.638	.305	-	1171005
SHU117.2412.30.1.12.IK	1.250	1.171	1.693	4.055	1.181	.957	.453	-	1171205
SHU117.3012.30.1.16.IK	1.250	1.171	2.087	4.449	1.575	1.193	.571	-	1171605

Dimensions in inch



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SHU117...	4.09T15P	T15PQ	5 Nm
SHU117...	5.12T20P	T20PQ	6.5 Nm
SHU117.1410...	030.3509.T15P	T15PQ	3.5 Nm



Part number	d	h	l	l_1	l_2	D_{min}	f_1	Form	HWS
SHMU117.1462.3.08	.625	.586	2.559	4.134	2.165	.551	.378	F	117F805
SHM117.1416.3.08	16	15	65	105	55	14	9.6	F	117F805

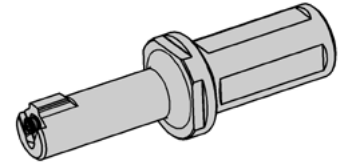
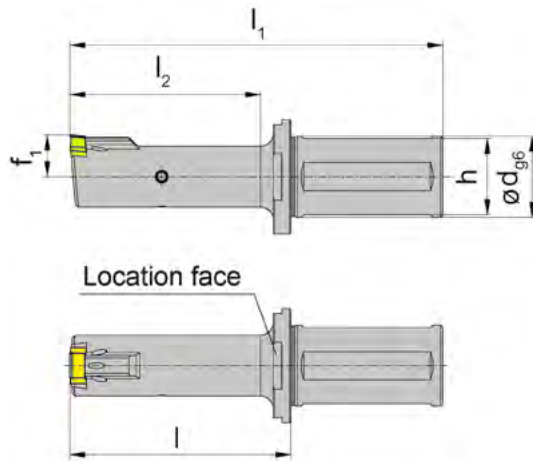
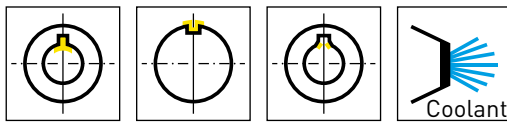
The shank is made of tungsten, giving the holder excellent vibration resistance.

Dimensions in inch and mm



Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SHMU117/SHM117	030.350P.0709	T15PQ	3.5 Nm



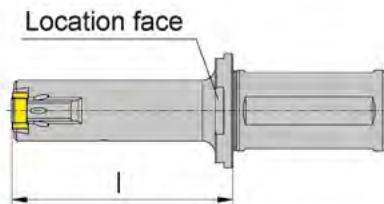
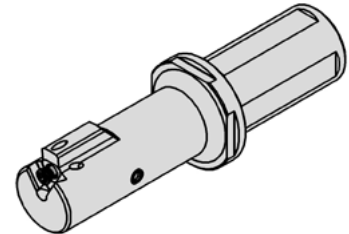
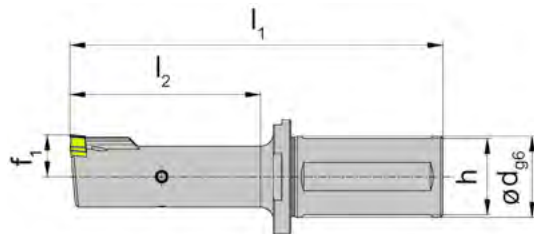
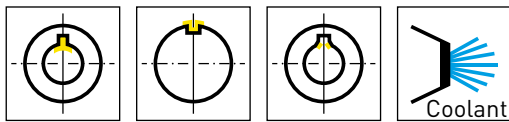
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SH117.1425.1.3.08.IK	25	23	32	82	20	14	9.6	G	117G805
SH117.1425.2.3.08.IK	25	23	41	91	30	14	9.6	G	117G805
SH117.1425.3.3.08.IK	25	23	51	101	40	14	9.6	G	117G805
SH117.1425.1.08.IK	25	23	42	92	30	14	9.6	F	117F805
SH117.1425.2.08.IK	25	23	52	102	40	14	9.6	F	117F805
SH117.1425.3.08.IK	25	23	81	131	70	14	9.6	F	117F805
SH117.1425.4.08.IK	25	23	96	146	85	14	9.6	F	117F805
SH117.1725.1.10.IK	25	23	53	103	40	17	9.5	A	117A005
SH117.1725.2.10.IK	25	23	68	118	55	17	9.5	A	117A005
SH117.1725.3.10.IK	25	23	83	133	70	17	9.5	A	117A005
SH117.1725.4.10.IK	25	23	98	148	85	17	9.5	A	117A005
SH117.1725.5.10.IK	25	23	113	163	100	17	9.5	A	117A005
SH117.0025.1.10.IK	25	23	63	113	50	22	12	B	117B005
SH117.0025.2.10.IK	25	23	83	133	70	22	12	B	117B005
SH117.0025.3.10.IK	25	23	103	153	90	22	12	B	117B005
SH117.0025.4.10.IK	25	23	123	173	110	22	12	B	117B005
SH117.0025.5.10.IK	25	23	143	193	130	22	12	B	117B005

Coolant supply G1/8 is not included - separate order required!

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SHM117.1416.3.08	030.350P.0709	T15PQ	3.5 Nm
SH117.1425...	030.3509.T15P	T15PQ	3.5 Nm
SH117...	4.09T15P	T15PQ	5 Nm



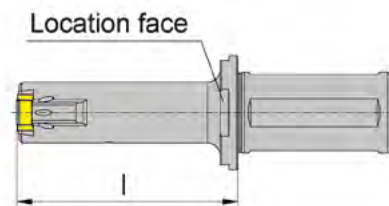
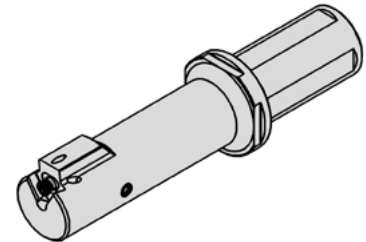
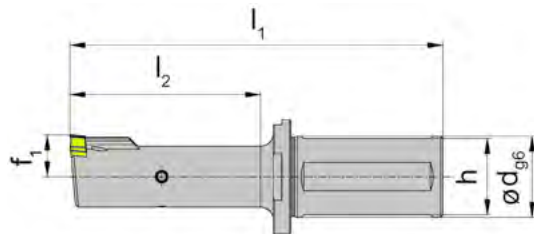
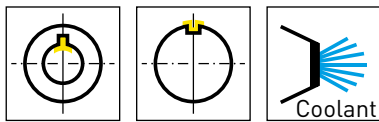
Part number	d	h	l	l ₁	l ₂	D _{min}	f ₁	Form	HWS
SH117.0032.1.16.IK	32	30	63	123	50	38	22	D	117D605
SH117.0032.2.16.IK	32	30	88	148	75	38	22	D	117D605
SH117.0032.3.16.IK	32	30	113	173	100	38	22	D	117D605
SH117.0032.4.16.IK	32	30	138	198	125	38	22	D	117D605
SH117.0032.5.16.IK	32	30	163	223	150	38	22	D	117D605
SH117.0032.6.16.IK	32	30	188	248	175	38	22	D	117D605
SH117.0032.7.16.IK	32	30	213	293	200	38	22	D	117D605
SH117.3032.1.16.IK	32	30	63	123	50	30	16.5	C	117C605
SH117.3032.2.16.IK	32	30	88	148	75	30	16.5	C	117C605
SH117.3032.3.16.IK	32	30	113	173	100	30	16.5	C	117C605
SH117.3032.4.16.IK	32	30	138	198	125	30	16.5	C	117C605
SH117.3032.5.16.IK	32	30	163	223	150	30	16.5	C	117C605
SH117.3032.6.16.IK	32	30	188	248	175	30	16.5	C	117C605

Coolant supply G1/8 is not included - separate order required!

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117...	5.12T20P	T20PQ	6.5 Nm



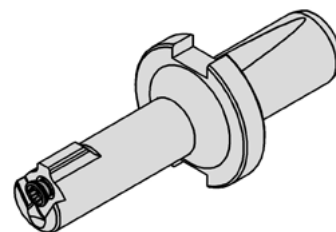
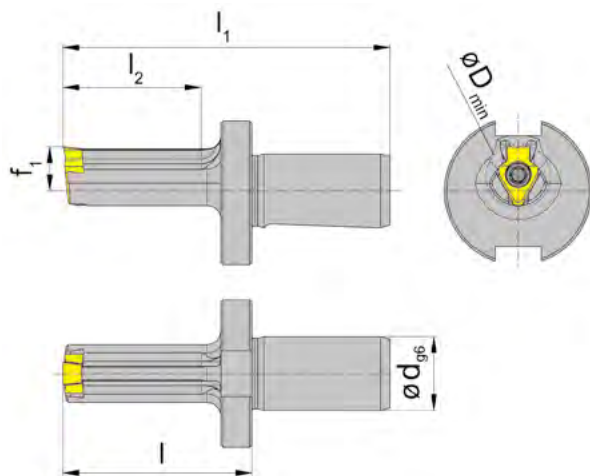
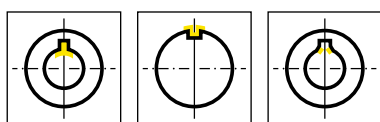
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SH117.4032.1.16.IK	32	30	63	123	50	40	21.5	E	117E605
SH117.4032.2.16.IK	32	30	88	148	75	40	21.5	E	117E605
SH117.4032.3.16.IK	32	30	113	173	100	40	21.5	E	117E605
SH117.4032.4.16.IK	32	30	138	198	125	40	21.5	E	117E605
SH117.4032.5.16.IK	32	30	163	223	150	40	21.5	E	117E605
SH117.4032.6.16.IK	32	30	188	248	175	40	21.5	E	117E605
SH117.4032.7.16.IK	32	30	213	293	200	40	21.5	E	117E605
SH117.4032.1.20.IK	32	30	63	123	50	40	21	H	117H005
SH117.4032.2.20.IK	32	30	113	173	100	40	21	H	117H005
SH117.4032.3.20.IK	32	30	163	223	150	40	21	H	117H005
SH117.5040.1.20.IK	40	38	65	125	50	50	26.5	I	117I005
SH117.5040.2.20.IK	40	38	115	175	100	50	26.5	I	117I005
SH117.5040.3.20.IK	40	38	165	225	150	50	26.5	I	117I005
SH117.5040.4.20.IK	40	38	215	295	200	50	26.5	I	117I005

Coolant supply G1/8 is not included - separate order required!

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.4032...	5.12T20P	T20PQ	6.5 Nm
SH117.5040	6.17T20P	T20PQ	7 Nm



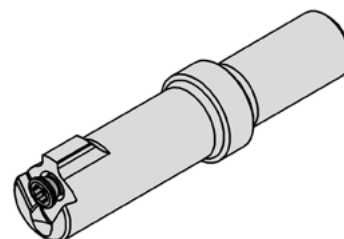
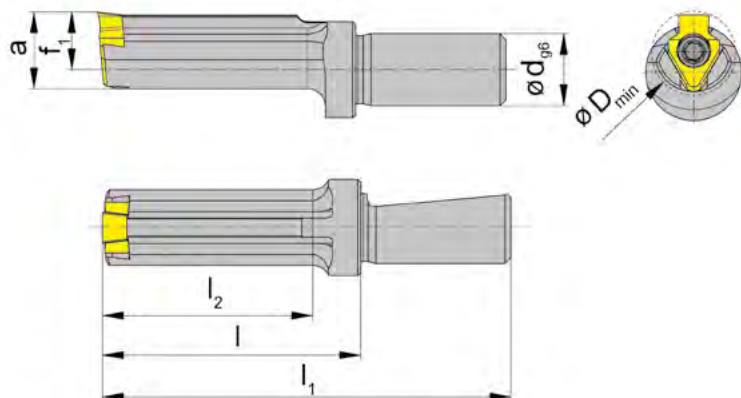
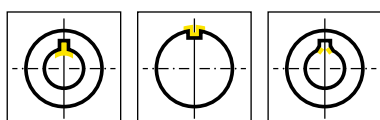
Part number	d	l	l ₁	l ₂	D _{min}	f ₁	Form	HWS	HMS
SH117.1416.E1.08	16	46	76	35	14	9.6	F	117F805	Benz
SH117.1716.E0.10	16	31	61	20	17	9.5	A	117A005	Benz
SH117.1716.E1.10	16	43	73	35	17	9.5	A	117A005	Benz
SH117.1716.E2.10	16	51	81	40	17	9.5	A	117A005	Benz
SH117.1716.E3.10	16	64	94	53	17	9.5	A	117A005	Benz
SH117.0016.E1.10	16	43	73	35	22	12	B	117B005	Benz
SH117.0016.E2.10	16	51	81	40	22	12	B	117B005	Benz
SH117.0016.E3.10	16	64	94	53	22	12	B	117B005	Benz

only usable for broaching devices EWS-Slot, BENZ LinA

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.1416.E1.08	030.3509.T15P	T15PQ	3.5 Nm
SH117...	4.09T15P	T15PQ	5 Nm



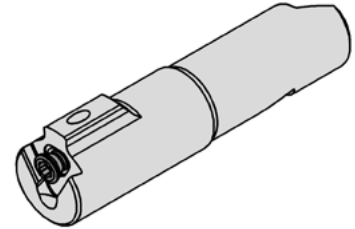
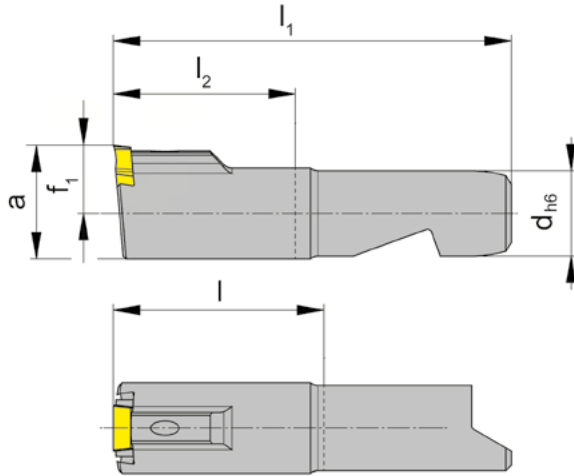
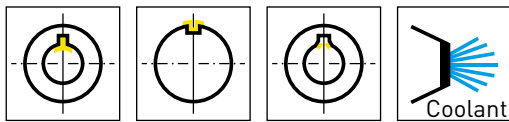
Part number	d	l	l ₁	l ₂	D _{min}	f ₁	a	Form	HWS	HMS
SH117.1412.S1.08	12	33	58	25	14	9.6	12.8	F	117F805	Schwarzer
SH117.1412.S2.08	12	43	68	35	14	9.6	12.8	F	117F805	Schwarzer
H117.1712.1439	12	33	58	25	17	9.5	16	A	117A005	Schwarzer
H117.1712.1407	12	43	68	35	17	9.5	16	A	117A005	Schwarzer
H117.2212.1441	12	33	58	25	22	12	20.75	B	117B005	Schwarzer
H117.2212.1442	12	43	68	35	22	12	20.75	B	117B005	Schwarzer
H117.3012.1440	12	33	58	25	30	16.5	28.5	C	117C605	Schwarzer
H117.3012.1419	12	43	68	35	30	16.5	28.5	C	117C605	Schwarzer

for broaching device Schwarzer

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.1412....	030.3509.T15P	T15PQ	3.5 Nm
H117...	4.09T15P	T15PQ	5 Nm
H117.3012.1...	5.12T20P	T20PQ	6.5 Nm



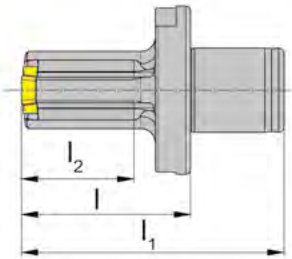
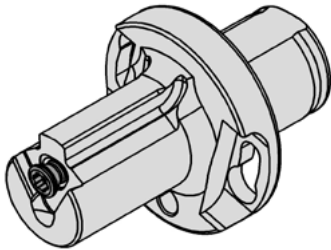
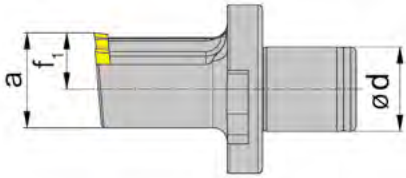
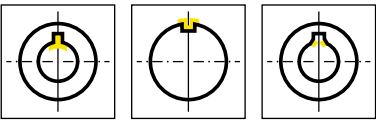
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SH117.0932.S.08	15	37	70	32	14	9.6	12.8	F	117F805	Schwarzer
SH117.1532.S.10	15	37	70	32	22	12	20	B	117B005	Schwarzer
SH117.1538.S.16	15	43	76	38	30	15	24	C	117C605	Schwarzer
SH117.1544.S.16	15	49	82	44	30	15	24	C	117C605	Schwarzer

for broaching device Schwarzer „2in1“

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.0932.S.08	030.3509.T15P	T15PQ	3.5 Nm
SH117.1532.S.10	4.09T15P	T15PQ	5 Nm
SH117.1...	5.12T20P	T20PQ	6.5 Nm



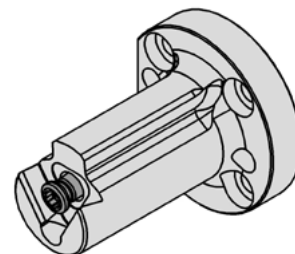
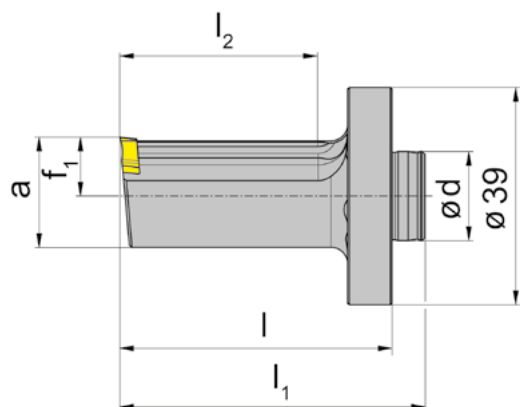
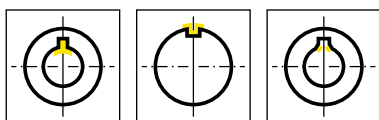
Part number	d	l	l ₁	l ₂	D _{min}	f ₁	a	Form	HWS	HMS
SH117.2218.A1.10	18	36	56	24	22	12	20.25	B	117B005	AR2P
SH117.2218.A2.10	18	44	64	33	22	12	20.25	B	117B005	AR2P
SH117.2218.A3.10	18	55	75	44	22	12	20.25	B	117B005	AR2P

for broaching device AP2R/AP3R

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117...	4.09T15P	T15PQ	5 Nm



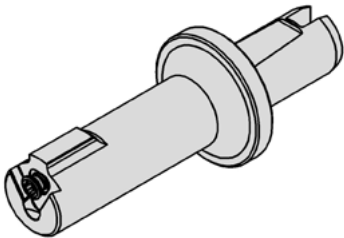
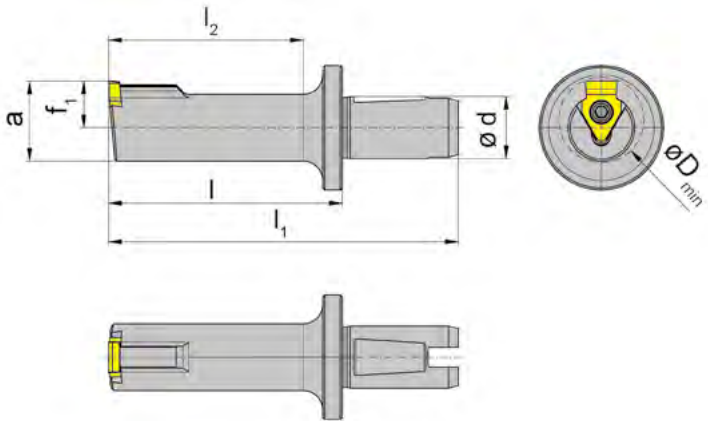
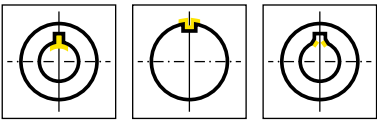
Part number	d	l	l ₁	l ₂	D _{min}	f ₁	a	Form	HWS	HMS
SH117.1416.W1.08	16	47	53	35	14	9.6	12.8	F	117F805	WT0-32
SH117.1716.W1.10	16	49	55	35	17	8.3	15.1	A	117A005	WT0-32
SH117.2216.W1.10	16	49	55	35	22	10.6	19.8	B	117B005	WT0-32
SH117.2616.W1.16	16	49	55	35	26	12.6	23.5	C	117C605	WT0-32
SH117.1416.W2.08	16	67	73	55	14	9.6	12.8	F	117F805	WT0-52
SH117.1716.W2.10	16	67	73	55	17	8.3	15.1	A	117A005	WT0-52
SH117.2216.W2.10	16	67	73	55	22	10.6	20.05	B	117B005	WT0-52
SH117.2616.W2.16	16	67	73	55	26	12.6	23.5	C	117C605	WT0-52
SH117.1714.W3.10	14	38	44	28	17	8.6	15.1	A	117A005	WT0-26

for broaching device WTO

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.1416....	030.3509.T15P	T15PQ	3.5 Nm
SH117...	4.09T15P	T15PQ	5 Nm
SH117.2616....	5.12T20P	T20PQ	6.5 Nm



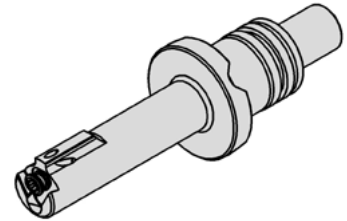
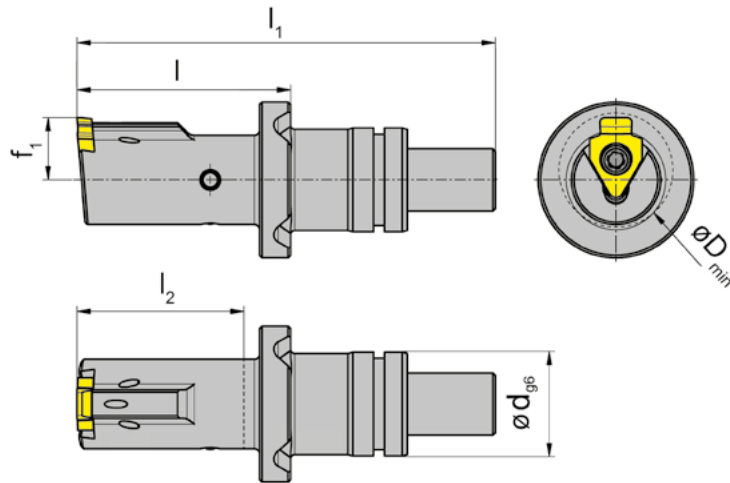
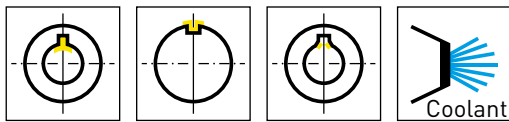
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SH117.1716.MT2.10	16	60	90	50	17	9.5	16	A	117A005	MT
SH117.2216.MT2.10	16	60	90	50	22	12	20.6	B	117B005	MT
SH117.3016.MT2.16	16	58	88	50	30	16.5	28.5	C	117C605	MT

for broaching device MT Marchetti

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117...	4.09T15P	T15PQ	5 Nm
SH117.3016.MT2.16	5.12T20P	T20PQ	6.5 Nm



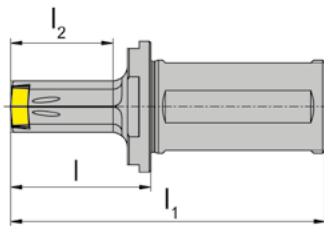
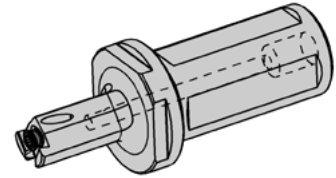
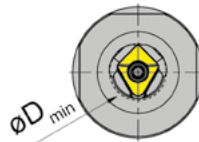
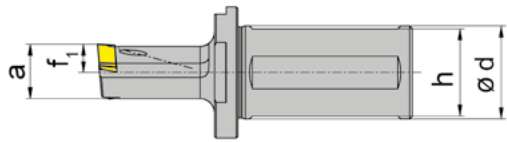
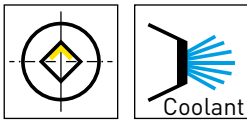
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SH117.1420.E6.08.IK	20	60.7	100.2	51	14	9.6	F	117F805	Benz
SH117.1720.E5.10.IK	20	41	80.5	32	17	9.5	A	117A005	Benz
SH117.1720.E6.10.IK	20	60	99.5	51	17	9.5	A	117A005	Benz
SH117.2220.E5.10.IK	20	41	80.5	32	22	12	B	117B005	Benz
SH117.2220.E6.10.IK	20	60	99.5	51	22	12	B	117B005	Benz
SH117.3020.E5.16.IK	20	41	80.5	32	30	16.5	C	117C605	Benz
SH117.3020.E6.16.IK	20	60	99.5	51	30	16.5	C	117C605	Benz

only usable for broaching devices EWSP20, BENZ LinA 4.0 with IK

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.1420....	030.3509.T15P	T15PQ	3.5 Nm
SH117...	4.09T15P	T15PQ	5 Nm
SH117.3020....	5.12T20P	T20PQ	6.5 Nm



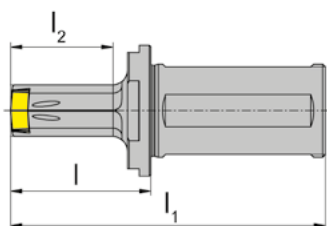
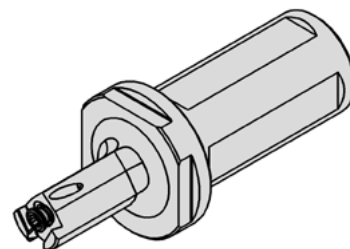
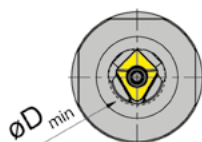
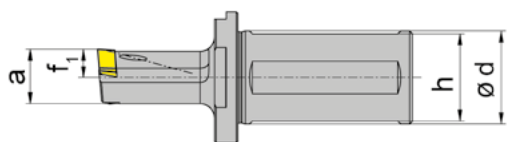
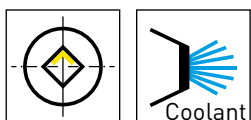
Part number	d	h	l	l ₁	l ₂	D _{min}	f ₁	a	HWS
SHU117.1310.SQ.1.08.IK	1.000	.921	1.496	3.465	.984	.531	.256	.504	1170805
SHU117.1510.SQ.1.10.IK	1.000	.921	1.496	3.465	.984	.610	.295	.577	1171005
SHU117.1712.SQ.1.12.IK	1.250	1.171	1.693	4.055	1.181	.689	.335	.650	1171205
SHU117.1912.SQ.1.16.IK	1.250	1.171	1.890	4.252	1.378	.768	.382	.736	1171605

Dimensions in inch



Spare Parts

	Clamping Screw	TORX PLUS® Wrench	Torque Value
SHU117.1310.SQ.1.08.IK	030.3509.T15P	T15PQ	3.5 Nm
SHU117....	4.09T15P	T15PQ	5 Nm
SHU117.1912.SQ.1.16.IK	5.12T20P	T20PQ	6.5 Nm



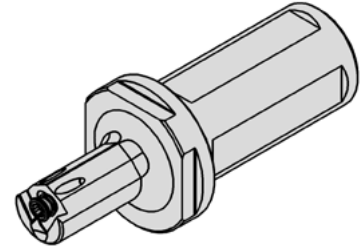
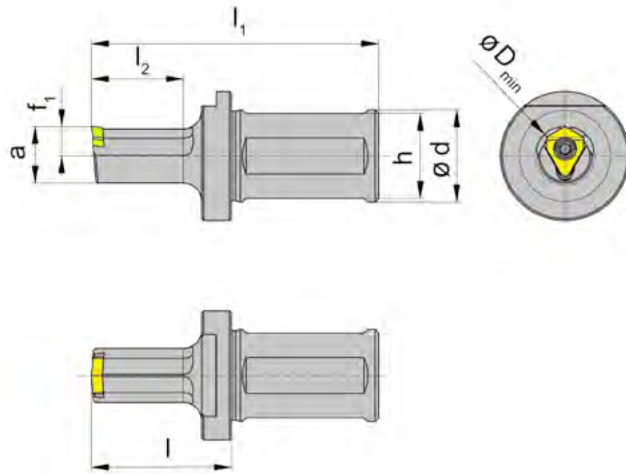
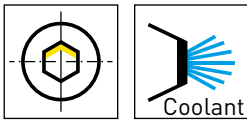
Part number	d	h	l	l ₁	l ₂	D _{min}	f ₁	a	Form	HWS
SH117.1325.SQ.1.08.IK	25	23	38	88	25	13.5	6.5	12.8	O	1170805
SH117.1525.SQ.1.10.IK	25	23	38	88	25	15.5	7.5	14.65	P	117P005
SH117.1732.SQ.1.12.IK	32	30	43	103	30	17.5	8.5	16.5	Q	117Q205
SH117.1932.SQ.1.16.IK	32	30	48	108	35	19.5	9.7	18.7	R	117R605

Coolant supply G1/8 is not included - separate order required!

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.1325.SQ.1.08.IK	030.3509.T15P	T15PQ	3.5 Nm
SH117....	4.09T15P	T15PQ	5 Nm
SH117.1932.SQ.1.16.IK	5.12T20P	T20PQ	6.5 Nm



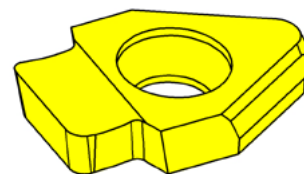
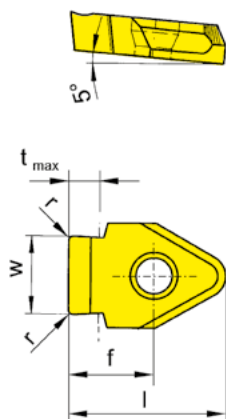
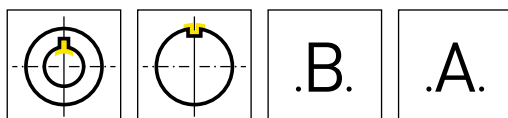
Part number	d	h	l	l ₁	l ₂	D _{min}	f ₁	a	Form	HWS
SH117.1425.30.1.08.IK	25	23	33	83	20	14.2	6.75	13	K	117K805
SH117.1625.30.1.10.IK	25	23	38	88	25	16.2	7.75	15	L	117L005
SH117.2432.30.1.12.IK	32	30	43	103	30	24.3	11.3	22	M	117M205
SH117.3032.30.1.16.IK	32	30	53	113	40	30.5	14.5	28	N	117N605

Coolant supply G1/8 is not included - separate order required!

Dimensions in mm

Spare Parts

Toolholder	Clamping Screw	TORX PLUS® Wrench	Torque Value
SH117.1425.30.1.08.IK	030.3509.T15P	T15PQ	3.5 Nm
SH117...	4.09T15P	T15PQ	5 Nm
SH117.3032.30.1.16.IK	5.12T20P	T20PQ	6.5 Nm



Grades

▲ In stock

△ 2 weeks

Part number	w	l	r	D _{min}	t _{max}	f	Form	HIS	MG12	AN45	DD25
S117.1198.LR.16.B1	.472	.650	.062	-	-	.276	-	117F1605	▲		▲
S117.1198.LR.16.B1	.472	.650	.062	-	-	.276	-	117F1605	▲		▲
S117.1200.LR.16.B1	.472	.650	.006	-	-	.276	-	117F1605	▲		▲
S117.1200.LR.16.B1	.472	.650	.006	-	-	.276	-	117F1605	▲		▲
S117.1230.LR.16.B1	.484	.650	.030	-	-	.276	-	117F1605	▲		▲
S117.1230.LR.16.B1	.484	.650	.030	-	-	.276	-	117F1605	▲		▲
SU117.1250.4.08.A1	.126	.512	.004	.551	.071	.236	G	117G805		▲	
SU117.1250.4.08.B1	.126	.512	.004	.551	.071	.236	G	117G805		▲	
SU117.1250.4.10.A1	.126	.551	.004	.625	.071	.236	A1	117A005		▲	
SU117.1250.4.10.B1	.126	.551	.004	.625	.071	.236	A1	117A005		▲	
SU117.1562.4.08.A1	.157	.512	.004	.551	.087	.236	F	117F805		▲	
SU117.1562.4.08.B1	.157	.512	.004	.551	.087	.236	F	117F805		▲	
SU117.1562.4.10.A1	.157	.551	.004	.625	.087	.236	A1	117A005		▲	
SU117.1562.4.10.B1	.157	.551	.004	.625	.087	.236	A1	117A005		▲	
SU117.1875.8.08.A1	.189	.512	.008	.551	.106	.236	F	117F805		▲	
SU117.1875.8.08.B1	.189	.512	.008	.551	.106	.236	F	117F805		▲	
SU117.1875.8.10.A1	.189	.571	.008	.669	.106	.256	A	117A005		▲	
SU117.1875.8.10.B1	.189	.571	.008	.669	.106	.256	A	117A005		▲	
SU117.2500.8.10.A1	.251	.571	.008	.669	.134	.256	A	117A005		▲	
SU117.2500.8.10.B1	.251	.571	.008	.669	.134	.256	A	117A005		▲	
SU117.2812.8.10.A1	.283	.630	.008	.866	.161	.315	B	117B005		▲	
SU117.2812.8.10.B1	.283	.630	.008	.866	.161	.315	B	117B005		▲	
SU117.3125.8.10.A1	.314	.630	.008	.866	.161	.315	B	117B005		▲	
SU117.3125.8.10.B1	.314	.630	.008	.866	.161	.315	B	117B005		▲	
SU117.3750.1.14.A1	.377	.815	.012	1.181	.197	.441	C	117C605		▲	
SU117.3750.1.14.B1	.377	.815	.012	1.181	.197	.441	C	117C605		▲	
SU117.4375.1.14.A1	.439	.815	.012	1.496	.224	.441	D	117D605		▲	
SU117.4375.1.14.B1	.439	.815	.012	1.496	.224	.441	D	117D605		▲	
SU117.5000.1.14.A1	.502	.815	.012	1.496	.260	.441	D	117D605		▲	
SU117.5000.1.14.B1	.502	.815	.012	1.496	.260	.441	D	117D605		▲	
SU117.5000.2.14.A1	.502	.815	.020	1.496	.335	.441	D	117D605		▲	
SU117.5000.2.14.B1	.502	.815	.020	1.496	.335	.441	D	117D605		▲	

.A geometry is recommended for broaching units

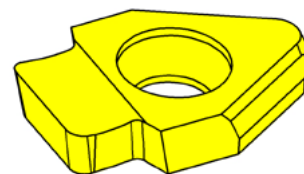
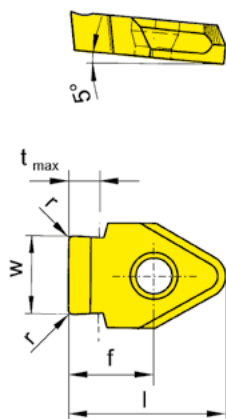
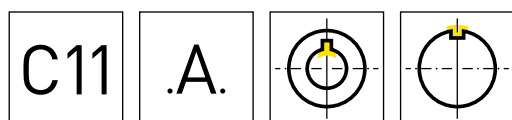
.B geometry is recommended for conventional broaching

Keyways according to Inch Standards

Dimensions inch



P	o	•	-
M	-	o	-
K	-	•	-
N	-	•	•
S	-	o	o
H	-	-	-

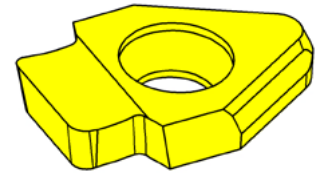
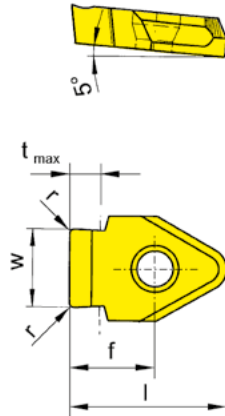
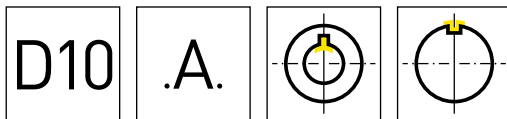


Grades

▲ In stock

△ 2 weeks

Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0305.01.08.B1	3	3.05	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0412.05.08.A1	4	4.12	13	.5	14	2.1	6	F	117F805	▲	▲	▲
S117.0612.09.10.A1	6	6.12	16	.85	22	2.6	8	B	117B005	▲	▲	▲
S117.0713.11.10.A1	7	7.13	16	1.05	22	3.3	8	B	117B005	▲	▲	▲
S117.0813.11.10.A1	8	8.13	16	1.05	22	3.4	8	B	117B005	▲	▲	▲
S117.1013.11.14.A1	10	10.13	20.7	1.05	30	4.2	11.2	C	117C605	▲	▲	▲
S117.1215.14.14.A1	12	12.15	20.7	1.35	38	5.1	11.2	D	117D605	▲	▲	▲
S117.1215.18.14.A1	16	12.15	20.7	1.75	38	6.6	11.2	D	117D605	▲	▲	▲
S117.1215.23.14.A1	24	12.15	20.7	2.25	38	8.5	11.2	D	117D605	▲	▲	▲
.A geometry is recommended for broaching units										P	●	●
Keyways according to DIN138										M	o	●
Dimensions in mm										K	●	-
										N	●	-
										S	o	o
										H	-	-

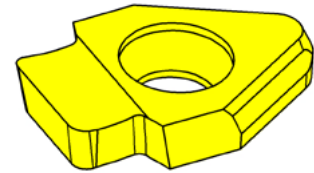
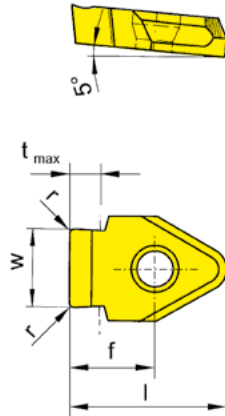
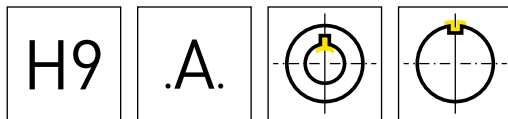


Grades

▲ In stock

△ 2 weeks

Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0305.01.08.A1	3	3.05	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0407.01.08.A1	4	4.07	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0507.02.08.A1	5	5.07	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0507.02.10.A1	5	5.07	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0607.02.10.A1	6	6.07	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0808.02.10.A1	8	8.08	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.1008.03.14.A1	10	10.08	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1210.03.14.A1	12	12.1	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1410.03.16.A1	14	14.1	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲
.A geometry is recommended for broaching units										P	●	●
Dimensions in mm										M	o	●
										K	●	-
										N	●	-
										S	o	o
										H	-	-

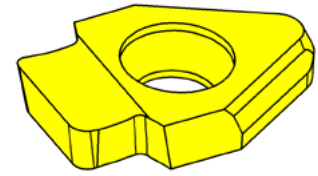
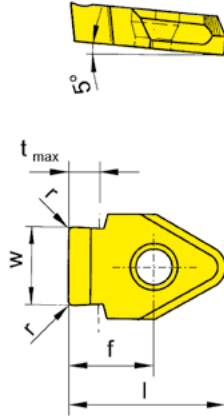
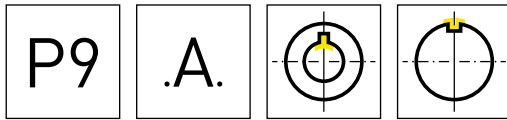


Grades

▲ In stock

△ 2 weeks

Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0302.01.08.A1	3	3.02	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0402.01.08.A1	4	4.02	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0502.02.08.A1	5	5.02	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0502.02.10.A1	5	5.02	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0602.02.10.A1	6	6.02	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0803.02.10.A1	8	8.03	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.1003.03.14.A1	10	10.03	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1203.03.14.A1	12	12.04	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1403.03.16.A1	14	14.04	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲
.A geometry is recommended for broaching units										P	●	●
Dimensions in mm										M	o	●
										K	●	-
										N	●	-
										S	o	o
										H	-	-

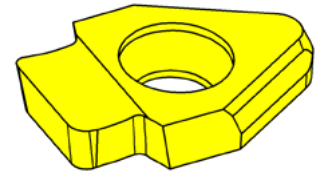
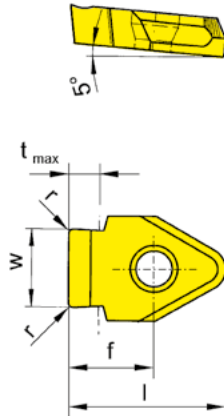
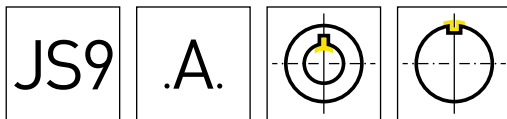


Grades

▲ In stock

△ 2 weeks

Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0298.01.08.A1	3	2.99	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0397.01.08.A1	4	3.98	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0497.02.08.A1	5	4.98	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0497.02.10.A1	5	4.98	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0597.02.10.A1	6	5.98	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0796.02.10.A1	8	7.98	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.0996.03.14.A1	10	9.98	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1196.03.14.A1	12	11.97	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1396.03.16.A1	14	13.97	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲
.A geometry is recommended for broaching units										P	●	●
Keyways according to DIN6885										M	o	●
Dimensions in mm										K	●	-
										N	●	-
										S	o	o
										H	-	-



Grades

▲ In stock

△ 2 weeks

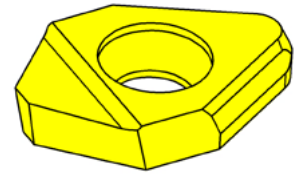
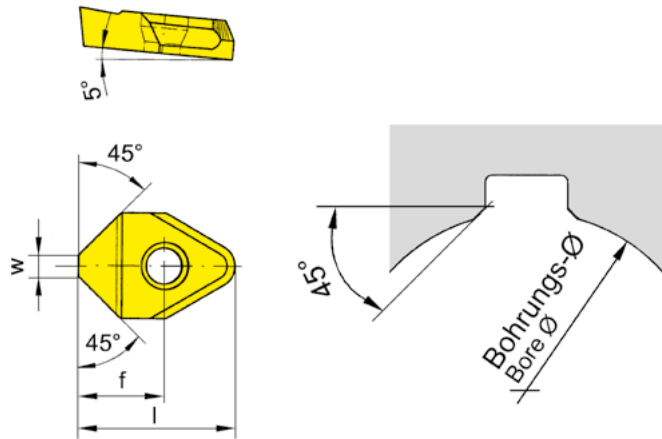
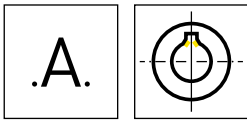
Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
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S117.0400.01.08.A1	4	4.01	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0500.02.08.A1	5	5.01	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0500.02.10.A1	5	5.01	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0600.02.10.A1	6	6.01	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0800.02.10.A1	8	8.01	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.1000.03.14.A1	10	10.01	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1200.03.14.A1	12	12.01	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1200.05.14.A1	12	12	20.7	.5	38	8.5	11.2	D	117D605	▲	▲	▲
S117.1400.03.16.A1	14	14.01	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲

.A geometry is recommended for broaching units

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	●	-
N	●	-
S	o	o
H	-	-



Grades

▲ In stock

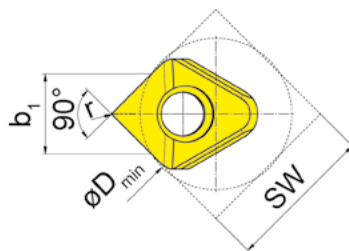
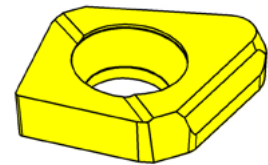
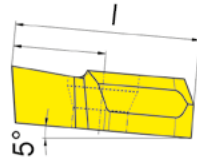
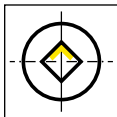
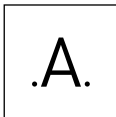
△ 2 weeks

Part number	w	l	D _{min}	f	Form	HIS		AN45	IG65
S117.1545.10.A1	1.5	16	17	8	A	117A005	▲	▲	▲
S117.2445.08.A1	2.4	13	14	6	F	117F805	▲	▲	▲
S117.3045.10.A1	3	16	22	8	B	117B005	▲	▲	▲
S117.6045.14.A1	6	20.7	30	11.2	C/D	117C605 • 117D605	▲	▲	▲
							P	●	●
							M	○	●
							K	●	-
							N	●	-
							S	○	○
							H	-	-

.A geometry is recommended for broaching units

For chamfering broached edges

Dimensions in mm

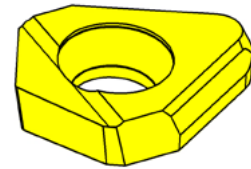
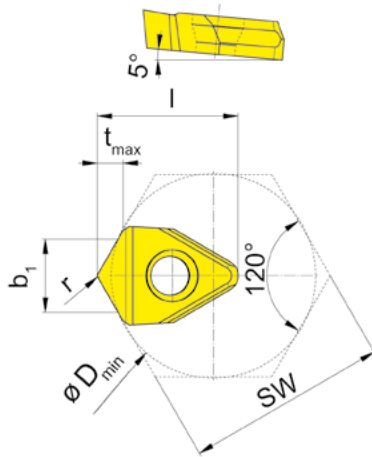
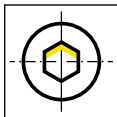
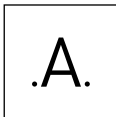


Grades

▲ In stock

Δ 2 weeks

Part number	SW	SW	b ₁	b ₁	l	r	D _{min}	Form	Toolholder	HIS		AN45	IG65	
S117.SQ.1315.08.A1	13-15	15	6.61-7.84	7.84	13	.2	13.5	O	SH117.1325.SQ.1.08.IK	1170805		▲	▲	
S117.SQ.1517.10.A1	15-17	17	7.84-9.08	9.08	14.8	.2	15.5	P	SH117.1525.SQ.1.10.IK	117P005		▲	▲	
S117.SQ.1719.12.A1	17-19	19	9.08-10.33	10.33	16.7	.2	17.5	Q	SH117.1732.SQ.1.12.IK	117Q205		▲	▲	
S117.SQ.1922.16.A1	19-22	22	10.33-12.22	12.22	19	.2	19.5	R	SH117.1932.SQ.1.16.IK	117R605		▲	▲	
.A geometry is recommended for broaching units												P	●	●
												M	○	●
For broaching square features												K	●	-
												N	●	-
Dimensions in mm												S	○	○
												H	-	-

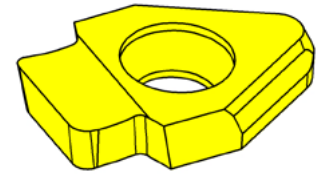
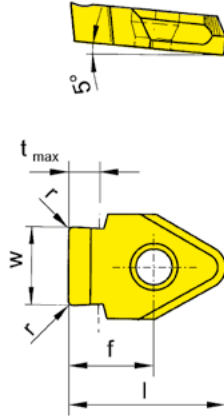
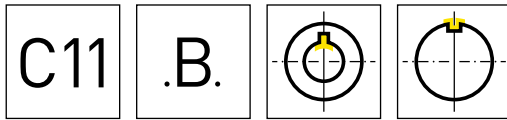


Grades

▲ In stock

Δ 2 weeks

Part number	SW	SW	b ₁	b ₁	l	r	D _{min}	D _{min}	t _{max}	Form	Toolholder	HIS		AN45	IG65
S117.SW14.08.A1	14-16	16	4.94-5.80	5.8	13	.2	14.2-16.2	16.2	1.9	K	SH117.1425.30.1.08	117K805		▲	▲
S117.SW16.10.A1	16-22	22	5.80-8.43	8.43	14	.2	16.2-22.2	22.2	2.5	L	SH117.1625.30.1.10	117L005		▲	▲
S117.SW24.12.A1	24-27	27	8.70-10.00	10	17	.3	24.3-27.3	27.3	3	M	SH117.2432.30.1.12	117M205		▲	▲
S117.SW30.16.A1	30-36	36	11.32-13.97	13.97	20.7	.3	30.3-36.3	36.3	4.2	N	SH117.3032.30.1.16	117N605		▲	▲
.A geometry is recommended for broaching units													P	●	●
For broaching hexagonal features													M	o	●
Dimensions in mm													K	●	-
													N	●	-
													S	o	o
													H	-	-



Grades

▲ In stock

△ 2 weeks

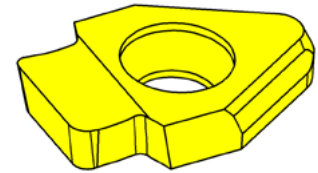
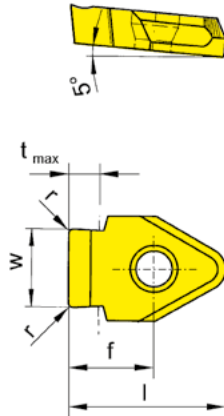
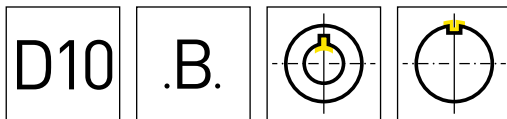
Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS	AN45	IG65
S117.0310.04.08.B1	3	3.1	13	.35	14	2	6	G	117G805	▲	▲
S117.0412.05.08.B1	4	4.12	13	.5	14	2.1	6	F	117F805	▲	▲
S117.0612.09.10.B1	6	6.12	16	.85	22	2.6	8	B	117B005	▲	▲
S117.0713.11.10.B1	7	7.13	16	1.05	22	3.3	8	B	117B005	▲	▲
S117.0813.11.10.B1	8	8.13	16	1.05	22	3.4	8	B	117B005	▲	▲
S117.1013.11.14.B1	10	10.13	20.7	1.05	30	4.2	11.2	C	117C605	▲	▲
S117.1215.14.14.B1	12	12.15	20.7	1.35	38	5.1	11.2	D	117D605	▲	▲
S117.1215.18.14.B1	16	12.15	20.7	1.75	38	6.6	11.2	D	117D605	▲	▲
S117.1215.23.14.B1	24	12.15	20.7	2.25	38	8.5	11.2	D	117D605	▲	▲
S117.1417.14.16.B1	14	14.17	20.7	1.35	40	6.8	11.2	E	117E605	▲	▲
S117.1617.18.18.B1	16	16.17	28.6	1.75	40	6.8	15.6	H	117H005	▲	▲
S117.1817.18.20.B1	18	18.17	28.6	1.75	50	7.8	15.6	I	117I005	▲	▲
S117.2020.20.20.B1	20	20.2	28.6	1.95	50	7.8	15.6	I	117I005	▲	▲

.B geometry is recommended for conventional broaching

Keyways according to DIN138

Dimensions in mm

P	●	●
M	○	●
K	●	-
N	●	-
S	○	○
H	-	-



Grades

▲ In stock

△ 2 weeks

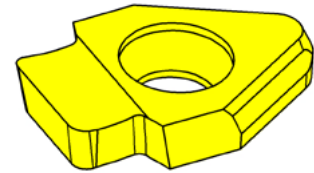
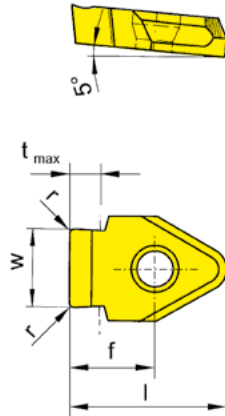
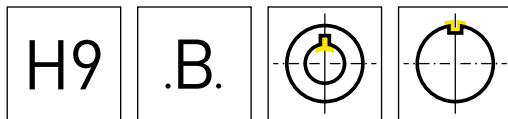
Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0305.01.08.B1	3	3.05	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0407.01.08.B1	4	4.07	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0507.02.08.B1	5	5.07	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0507.02.10.B1	5	5.07	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0607.02.10.B1	6	6.07	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0808.02.10.B1	8	8.08	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.1008.03.14.B1	10	10.08	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1210.03.14.B1	12	12.1	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1410.03.16.B1	14	14.1	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲
S117.1610.03.18.B1	16	16.1	26.8	.3	40	6.8	15.4	H	117H005	▲	▲	▲
S117.1810.03.20.B1	18	18.1	26.8	.3	50	7.8	15.6	I	117I005	▲	▲	▲
S117.2012.05.20.B1	20	20.12	26.8	.5	50	8.5	15.6	I	117I005	▲	▲	▲

.B geometry is recommended for conventional broaching

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	●	-
N	●	-
S	o	o
H	-	-



Grades

▲ In stock

△ 2 weeks

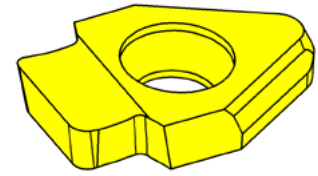
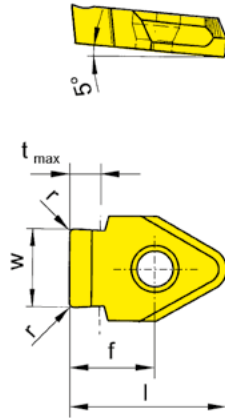
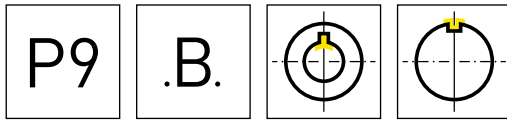
Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS	AN45	IG65
S117.0302.01.08.B1	3	3.02	13	.12	14	2	6	G	117G805	▲	▲
S117.0402.01.08.B1	4	4.02	13	.12	14	2.2	6	F	117F805	▲	▲
S117.0502.02.08.B1	5	5.02	13	.2	14	2.9	6	F	117F805	▲	▲
S117.0502.02.10.B1	5	5.02	14.5	.2	17	2.8	6.5	A	117A005	▲	▲
S117.0602.02.10.B1	6	6.02	14.5	.2	17	3.5	6.5	A	117A005	▲	▲
S117.0803.02.10.B1	8	8.03	16	.2	22	4.3	8	B	117B005	▲	▲
S117.1003.03.14.B1	10	10.03	20.7	.3	30	4.4	11.2	C	117C605	▲	▲
S117.1203.03.14.B1	12	12.04	20.7	.3	38	5.9	11.2	D	117D605	▲	▲
S117.1403.03.16.B1	14	14.04	20.7	.3	40	6.8	11.2	E	117E605	▲	▲
S117.1603.03.18.B1	16	16.04	28.6	.3	40	6.8	15.6	H	117H005	▲	▲
S117.1803.03.20.B1	18	18.04	28.6	.3	50	7.8	15.6	I	117I005	▲	▲
S117.2004.05.20.B1	20	20.04	28.6	.5	50	8.5	15.6	I	117I005	▲	▲

.B geometry is recommended for conventional broaching

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	●	-
N	●	-
S	o	o
H	-	-



Grades

▲ In stock

△ 2 weeks

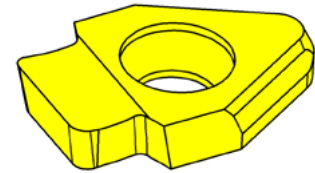
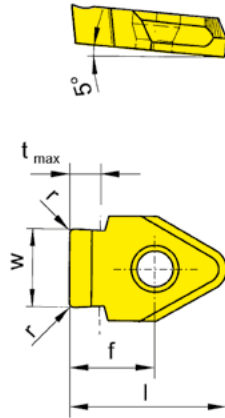
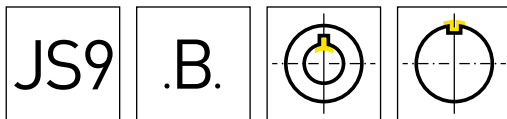
Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0298.01.08.B1	3	2.99	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0397.01.08.B1	4	3.98	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0497.02.08.B1	5	4.98	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0497.02.10.B1	5	4.98	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0597.02.10.B1	6	5.98	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0796.02.10.B1	8	7.98	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.0996.03.14.B1	10	9.98	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1196.03.14.B1	12	11.97	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1396.03.16.B1	14	13.97	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲
S117.1597.03.18.B1	16	15.97	28.6	.3	40	6.8	15.6	H	117H005	▲	▲	▲
S117.1797.03.20.B1	18	17.97	28.6	.3	50	7.8	15.6	I	117I005	▲	▲	▲
S117.1997.05.20.B1	20	19.97	28.6	.5	50	8.5	15.6	I	117I005	▲	▲	▲

.B geometry is recommended for conventional broaching

Keyways according to DIN6885

Dimensions in mm

P	●	●
M	o	●
K	●	-
N	●	-
S	o	o
H	-	-



Grades

▲ In stock

△ 2 weeks

Part number	Nw	w	l	r	D _{min}	t _{max}	f	Form	HIS		AN45	IG65
S117.0300.01.08.B1	3	3.01	13	.12	14	2	6	G	117G805	▲	▲	▲
S117.0400.01.08.B1	4	4.01	13	.12	14	2.2	6	F	117F805	▲	▲	▲
S117.0500.02.08.B1	5	5.01	13	.2	14	2.9	6	F	117F805	▲	▲	▲
S117.0500.02.10.B1	5	5.01	14.5	.2	17	2.8	6.5	A	117A005	▲	▲	▲
S117.0600.02.10.B1	6	6.01	14.5	.2	17	3.5	6.5	A	117A005	▲	▲	▲
S117.0800.02.10.B1	8	8.01	16	.2	22	4.3	8	B	117B005	▲	▲	▲
S117.1000.03.14.B1	10	10.01	20.7	.3	30	4.4	11.2	C	117C605	▲	▲	▲
S117.1200.03.14.B1	12	12.01	20.7	.3	38	5.9	11.2	D	117D605	▲	▲	▲
S117.1200.05.14.B1	12	12	20.7	.5	38	8.5	11.2	D	117D605	▲	▲	▲
S117.1400.03.16.B1	14	14.01	20.7	.3	40	6.8	11.2	E	117E605	▲	▲	▲
S117.1601.03.18.B1	16	16.01	28.6	.3	40	6.8	15.6	H	117H005	▲	▲	▲
S117.1801.03.20.B1	18	18.01	28.6	.3	50	7.8	15.6	I	117I005	▲	▲	▲
S117.2002.05.20.B1	20	20.02	28.6	.5	50	8.5	15.6	I	117I005	▲	▲	▲

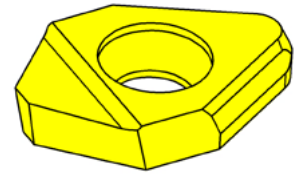
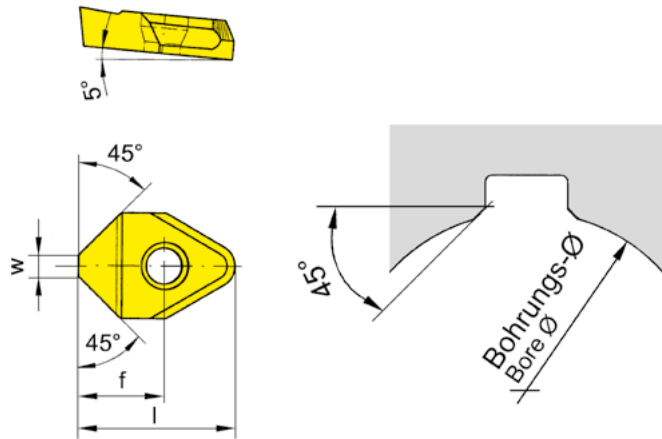
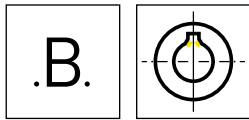
.B geometry is recommended for conventional broaching

Keyways according to DIN6885

Insert S117.1200.05.14 = Nw **from** 12 mm!

Dimensions in mm

P	●	●
M	o	●
K	●	-
N	●	-
S	o	o
H	-	-



Grades

▲ In stock

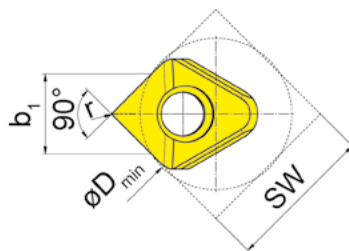
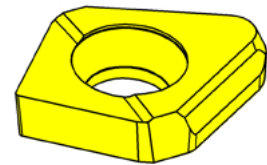
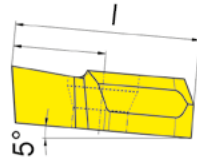
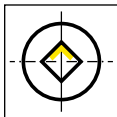
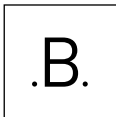
△ 2 weeks

Part number	w	l	D _{min}	f	Form	HIS		AN45	IG65
S117.1545.10.B2	1.5	16	17	8	A	117A005	▲	▲	▲
S117.2445.08.B2	2.4	13	14	6	F	117F805	▲	▲	▲
S117.3045.10.B2	3	16	22	8	B	117B005	▲	▲	▲
S117.6045.14.B2	6	20.7	30	11.2	C/D	117C605 • 117D605	▲	▲	▲
							P	●	●
							M	o	●
							K	●	-
							N	●	-
							S	o	o
							H	-	-

.B geometry is recommended for conventional broaching

For chamfering broached edges

Dimensions in mm

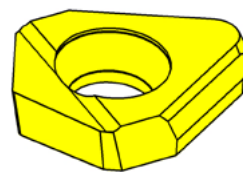
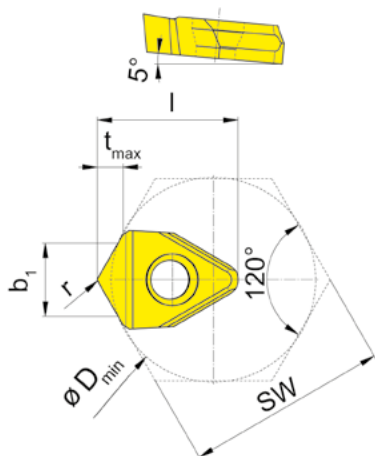
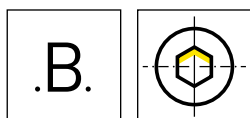


Grades

▲ In stock

△ 2 weeks

Part number	SW	SW	b ₁	b ₁	l	r	D _{min}	Form	Toolholder	HIS		AN45	IG65	
S117.SQ.1315.08.B2	13-15	15	6.61-7.84	7.84	13	.2	13.5	O	SH117.1325.SQ.1.08.IK	1170805		▲	▲	
S117.SQ.1517.10.B2	15-17	17	7.84-9.08	9.08	14.8	.2	15.5	P	SH117.1525.SQ.1.10.IK	117P005		▲	▲	
S117.SQ.1719.12.B2	17-19	19	9.08-10.33	10.33	16.7	.2	17.5	Q	SH117.1732.SQ.1.12.IK	117Q205		▲	▲	
S117.SQ.1922.16.B2	19-22	22	10.33-12.22	12.22	19	.2	19.5	R	SH117.1932.SQ.1.16.IK	117R605		▲	▲	
.B geometry is recommended for conventional broaching												P	●	●
												M	○	●
For broaching square features												K	●	-
												N	●	-
Dimensions in mm												S	○	○
												H	-	-



Grades

▲ In stock

Δ 2 weeks

Part number	SW	SW	b ₁	b ₁	l	r	D _{min}	D _{min}	t _{max}	Form	Toolholder	HIS		AN45	IG65
S117.SW14.08.B2	14-16	16	4.94-5.80	5.8	13	.2	14.2-16.2	16.2	1.9	K	SH117.1425.30.1.08	117K805		▲	▲
S117.SW16.10.B2	16-22	22	5.80-8.43	8.43	14	.2	16.2-22.2	22.2	2.5	L	SH117.1625.30.1.10	117L005		▲	▲
S117.SW24.12.B2	24-27	27	8.70-10.00	10	17	.3	24.3-27.3	27.3	3	M	SH117.2432.30.1.12	117M205		▲	▲
S117.SW30.16.B2	30-36	36	11.32-13.97	13.97	20.7	.3	30.3-36.3	36.3	4.2	N	SH117.3032.30.1.16	117N605		▲	▲

.B geometry is recommended for conventional broaching

For broaching hexagonal features

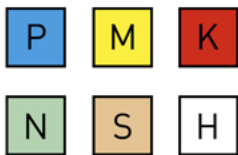
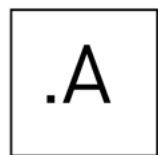
Dimensions in mm

P	●	●
M	○	●
K	●	-
N	●	-
S	○	○
H	-	-

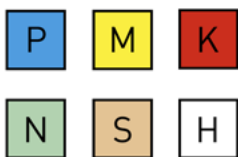
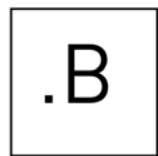
Geometry

Material

Depth of Cut



Recommended for: Broaching units
ap = .0008 - .0059 in
ap = 0.02 - 0.15 mm



Recommended for: Conventional broaching
ap = .0008 - .0059 in
ap = 0.02 - 0.15 mm

Broaching

Tolerance	Width	D _{min}	Insert ...A...	Insert ...B...	Toolholder
C11	3.1	14	S117.0310.04.08.A1	S117.0310.04.08.B1	SH117...
C11	4.12	14	S117.0412.05.08.A1	S117.0412.05.08.B1	SH117...
C11	6.12	22	S117.0612.09.10.A1	S117.0612.09.10.B1	SH117...
C11	7.13	22	S117.0713.11.10.A1	S117.0713.11.10.B1	SH117...
C11	8.13	22	S117.0813.11.10.A1	S117.0813.11.10.B1	SH117...
C11	10.13	30		S117.1013.11.14.B1	SH117...
C11	12.15	38		S117.1215.14.14.B1	SH117...
C11	12.15	38		S117.1215.18.14.B1	SH117...
C11	12.15	38		S117.1215.23.14.B1	SH117...
C11	14.17	40		S117.1417.14.16.B1	SH117...
C11	16.17	40		S117.1617.18.18.B1	SH117...
C11	18.17	50		S117.1817.18.20.B1	SH117...
C11	20.2	50		S117.2020.20.20.B1	SH117...
D10	3.05	14	S117.0305.01.08.A1	S117.0305.01.08.B1	SH117...
D10	4.07	14	S117.0407.01.08.A1	S117.0407.01.08.B1	SH117...
D10	5.07	14	S117.0507.02.08.A1	S117.0507.02.08.B1	SH117...
D10	5.07	17	S117.0507.02.10.A1	S117.0507.02.10.B1	SH117...
D10	6.07	17	S117.0607.02.10.A1	S117.0607.02.10.B1	SH117...
D10	8.08	22	S117.0808.02.10.A1	S117.0808.02.10.B1	SH117...
D10	10.08	30		S117.1008.03.14.B1	SH117...
D10	12.1	38		S117.1210.03.14.B1	SH117...
D10	14.1	40		S117.1410.03.16.B1	SH117...
D10	16.1	40		S117.1610.03.18.B1	SH117...
D10	18.1	50		S117.1810.03.20.B1	SH117...
D10	20.12	50		S117.2012.05.20.B1	SH117...
H9	3.02	14	S117.0302.01.08.A1	S117.0302.01.08.B1	SH117...
H9	4.02	14	S117.0402.01.08.A1	S117.0402.01.08.B1	SH117...
H9	5.02	14	S117.0502.02.08.A1	S117.0502.02.08.B1	SH117...
H9	5.02	17	S117.0502.02.10.A1	S117.0502.02.10.B1	SH117...
H9	6.02	17	S117.0602.02.10.A1	S117.0602.02.10.B1	SH117...
H9	8.03	22	S117.0803.02.10.A1	S117.0803.02.10.B1	SH117...
H9	10.03	30		S117.1003.03.14.B1	SH117...
H9	12.04	38		S117.1203.03.14.B1	SH117...
H9	14.04	40		S117.1403.03.16.B1	SH117...
H9	16.04	40		S117.1603.03.18.B1	SH117...
H9	18.04	50		S117.1803.03.20.B1	SH117...
H9	20.04	50		S117.2004.05.20.B1	SH117...

Broaching

Tolerance	Width	D _{min}	Insert ...A..	Insert ...B..	Toolholder
P9	2.99	14	S117.0298.01.08.A1	S117.0298.01.08.B1	SH117...
P9	3.98	14	S117.0397.01.08.A1	S117.0397.01.08.B1	SH117...
P9	4.98	14	S117.0497.02.08.A1	S117.0497.02.08.B1	SH117...
P9	4.98	17	S117.0497.02.10.A1	S117.0497.02.10.B1	SH117...
P9	5.98	17	S117.0597.02.10.A1	S117.0597.02.10.B1	SH117...
P9	7.98	22	S117.0796.02.10.A1	S117.0796.02.10.B1	SH117...
P9	9.98	30		S117.0996.03.14.B1	SH117...
P9	11.97	38		S117.1196.03.14.B1	SH117...
P9	13.97	40		S117.1396.03.16.B1	SH117...
P9	15.97	40		S117.1597.03.18.B1	SH117...
P9	17.97	50		S117.1797.03.20.B1	SH117...
P9	19.97	50		S117.1997.05.20.B1	SH117...
JS9	3.01	14	S117.0300.01.08.A1	S117.0300.01.08.B1	SH117...
JS9	4.01	14	S117.0400.01.08.A1	S117.0400.01.08.B1	SH117...
JS9	5.01	14	S117.0500.02.08.A1	S117.0500.02.08.B1	SH117...
JS9	5.01	17	S117.0500.02.10.A1	S117.0500.02.10.B1	SH117...
JS9	6.01	17	S117.0600.02.10.A1	S117.0600.02.10.B1	SH117...
JS9	8.01	22	S117.0800.02.10.A1	S117.0800.02.10.B1	SH117...
JS9	10.01	30		S117.1000.03.14.B1	SH117...
JS9	12.01	38		S117.1200.03.14.B1	SH117...
JS9	12	38		S117.1200.05.14.B1	SH117...
JS9	14.01	40		S117.1400.03.16.B1	SH117...
JS9	16.01	40		S117.1601.03.18.B1	SH117...
JS9	18.01	50		S117.1801.03.20.B1	SH117...
JS9	20.02	50		S117.2002.05.20.B1	SH117...

Hexagonal Profile

SW	D _{min}	Insert ...A..	Insert ...B..	Toolholder
14-16	13	S117.SW14.08.A1	S117.SW14.08.B2	SH117.1425.30.1.08
16-22	14	S117.SW16.10.A1	S117.SW16.10.B2	SH117.1625.30.1.10
24-27	17	S117.SW24.12.A1	S117.SW24.12.B2	SH117.2432.30.1.12
30-36	20.7	S117.SW30.16.A1	S117.SW30.16.B2	SH117.3032.30.1.16

Square Broaching

SQ	D _{min}	Insert ...A..	Insert ...B..	Toolholder
13-15	13.5	S117.SQ.1315.08.A1	S117.SQ.1315.08.B2	SH117.1325.SQ.1.08.IK
15-17	15.5	S117.SQ.1517.10.A1	S117.SQ.1517.10.B2	SH117.1525.SQ.1.10.IK
17-19	17.5	S117.SQ.1719.12.A1	S117.SQ.1719.12.B2	SH117.1732.SQ.1.12.IK
19-22	19.5	S117.SQ.1922.16.A1	S117.SQ.1922.16.B2	SH117.1932.SQ.1.16.IK



SOLID CARBIDE DRILLING

SYSTEMS D1122

Inch Drills - System D1122 (Steel and Cast Iron)



Page 93
3xd
Ø .125"-.563"



Page 94
5xd
Ø .125"-.563"



Page 95
8xd
Ø .125"-.563"

Metric 3xd Drills - System D1122 (Steel and Cast Iron)



Page 96
3xd
Ø 3-5.3mm



Page 97
3xd
Ø 5.4-7.9mm



Page 98
3xd
Ø 8-10.4mm



Page 99
3xd
Ø 10.5-12.9mm



Page 100
3xd
Ø 13-20mm

Metric 5xd Drills - System D1122 (Steel and Cast Iron)



Page 101
5xd
Ø 3-5.3mm



Page 102
5xd
Ø 5.4-7.9mm



Page 103
5xd
Ø 8-10.4mm



Page 104
5xd
Ø 10.5-12.9mm



Page 105
5xd
Ø 13-20mm

Metric 8xd Drills - System D1122 (Steel and Cast Iron)



Page 106
8xd
Ø 3-5.3mm



Page 107
8xd
Ø 5.4-7.9mm



Page 108
8xd
Ø 8-10.4mm



Page 109
8xd
Ø 10.5-12.9mm



Page 110
8xd
Ø 13-20mm

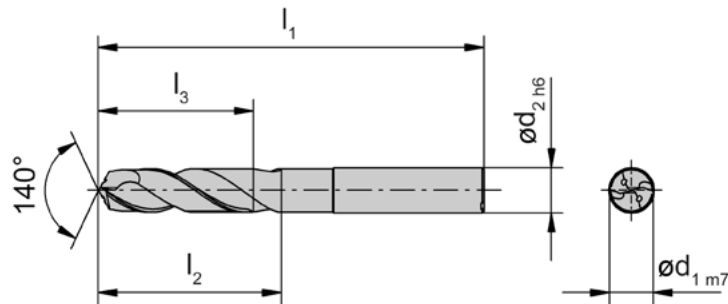
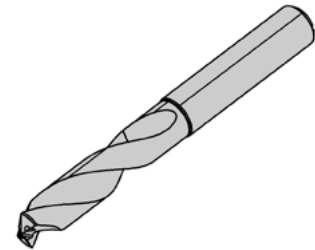
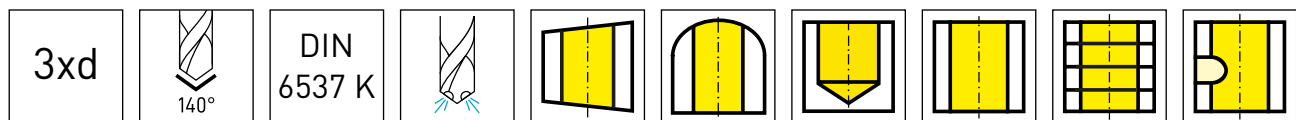
Metric 3xd and 5xd Drills - System DDM (General Purpose)



Page 111-116
3xd
Ø 3-20mm



Page 117-122
5xd
Ø 3-20mm



Grades

▲ In stock

△ 2 weeks

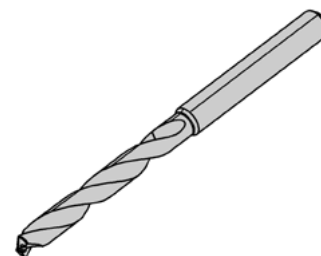
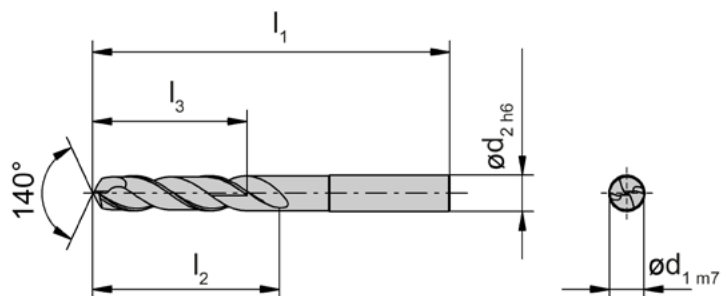
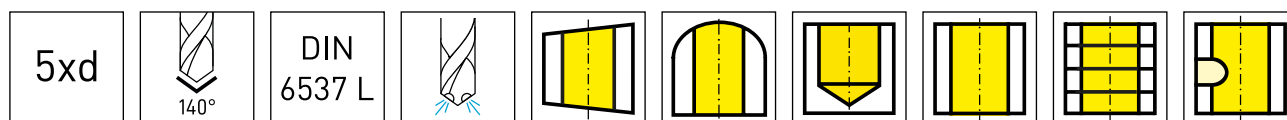
Part number	d _{1m7}	d _{2h6}	l ₁	l ₂	l ₃	Form	ES35
D1122.03.A0318C	.125	.236	2.441	.787	.551	DIN 6335 HA	▲
D1122.03.A0397C	.156	.236	2.598	.945	.669	DIN 6335 HA	▲
D1122.03.A0437C	.172	.236	2.598	.945	.669	DIN 6335 HA	▲
D1122.03.A0476C	.187	.236	2.598	.945	.787	DIN 6335 HA	▲
D1122.03.A0516C	.217	.236	2.598	1.102	.787	DIN 6335 HA	▲
D1122.03.A0556C	.219	.236	2.598	1.102	.787	DIN 6335 HA	▲
D1122.03.A0595C	.234	.236	2.598	1.102	.787	DIN 6335 HA	▲
D1122.03.A0635C	.250	.315	3.110	1.339	.945	DIN 6335 HA	▲
D1122.03.A0675C	.266	.315	3.110	1.339	.945	DIN 6335 HA	▲
D1122.03.A0714C	.281	.315	3.110	1.614	1.142	DIN 6335 HA	▲
D1122.03.A0754C	.297	.315	3.110	1.614	1.142	DIN 6335 HA	▲
D1122.03.A0794C	.313	.315	3.110	1.614	1.142	DIN 6335 HA	▲
D1122.03.A0833C	.328	.394	3.504	1.850	1.378	DIN 6335 HA	▲
D1122.03.A0873C	.344	.394	3.504	1.850	1.378	DIN 6335 HA	▲
D1122.03.A0913C	.359	.394	3.504	1.850	1.378	DIN 6335 HA	▲
D1122.03.A0953C	.375	.394	3.504	1.850	1.378	DIN 6335 HA	▲
D1122.03.A0992C	.391	.394	3.504	1.850	1.378	DIN 6335 HA	▲
D1122.03.A1032C	.406	.472	4.016	2.165	1.575	DIN 6335 HA	▲
D1122.03.A1072C	.422	.472	4.016	2.165	1.575	DIN 6335 HA	▲
D1122.03.A1111C	.437	.472	4.016	2.165	1.575	DIN 6335 HA	▲
D1122.03.A1151C	.453	.472	4.016	2.165	1.575	DIN 6335 HA	▲
D1122.03.A1191C	.469	.472	4.016	2.165	1.575	DIN 6335 HA	▲
D1122.03.A1310C	.516	.551	4.213	2.362	1.693	DIN 6335 HA	▲
D1122.03.A1349C	.531	.551	4.213	2.362	1.693	DIN 6335 HA	▲
D1122.03.A1389C	.547	.551	4.213	2.362	1.693	DIN 6335 HA	▲
D1122.03.A1429C	.563	.551	4.213	2.362	1.693	DIN 6335 HA	▲

Dimensions in inch



P	●
M	-
K	●
N	-
S	-
H	-

B



Grades

▲ In stock

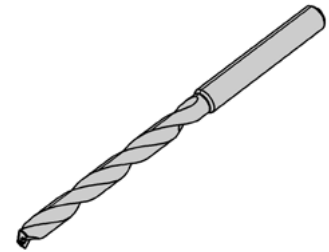
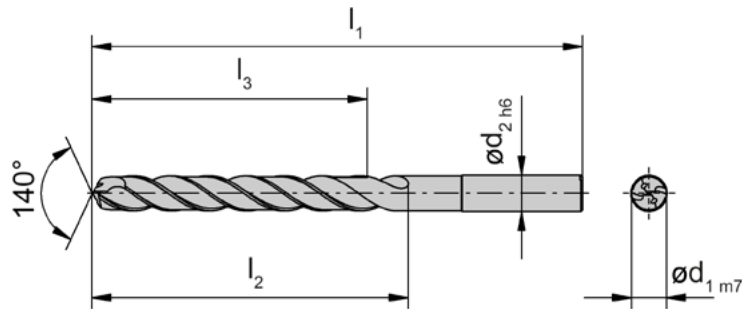
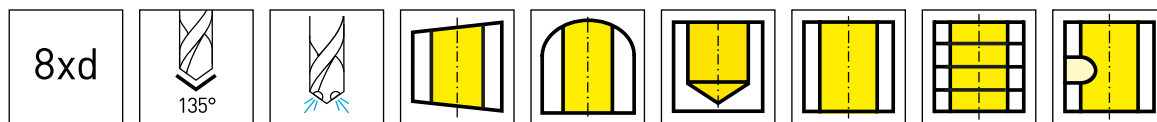
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.05.A0318C	.125	.236	2.598	1.102	.906	DIN 6335 HA	▲
D1122.05.A0397C	.156	.236	2.913	1.417	1.142	DIN 6335 HA	▲
D1122.05.A0437C	.172	.236	2.913	1.417	1.142	DIN 6335 HA	▲
D1122.05.A0476C	.187	.236	3.228	1.732	1.142	DIN 6335 HA	▲
D1122.05.A0516C	.217	.236	3.228	1.732	1.378	DIN 6335 HA	▲
D1122.05.A0556C	.219	.236	3.228	1.732	1.378	DIN 6335 HA	▲
D1122.05.A0595C	.234	.236	3.228	1.732	1.378	DIN 6335 HA	▲
D1122.05.A0635C	.250	.315	3.583	2.087	1.693	DIN 6335 HA	▲
D1122.05.A0675C	.266	.315	3.583	2.087	1.693	DIN 6335 HA	▲
D1122.05.A0714C	.281	.315	3.583	2.087	1.693	DIN 6335 HA	▲
D1122.05.A0754C	.297	.315	3.583	2.087	1.693	DIN 6335 HA	▲
D1122.05.A0794C	.313	.315	3.583	2.087	1.693	DIN 6335 HA	▲
D1122.05.A0833C	.328	.394	4.055	2.402	1.929	DIN 6335 HA	▲
D1122.05.A0873C	.344	.394	4.055	2.402	1.929	DIN 6335 HA	▲
D1122.05.A0913C	.359	.394	4.055	2.402	1.929	DIN 6335 HA	▲
D1122.05.A0953C	.375	.394	4.055	2.402	1.929	DIN 6335 HA	▲
D1122.05.A0992C	.391	.394	4.055	2.402	1.929	DIN 6335 HA	▲
D1122.05.A1032C	.406	.472	4.646	2.795	2.205	DIN 6335 HA	▲
D1122.05.A1072C	.422	.472	4.646	2.795	2.205	DIN 6335 HA	▲
D1122.05.A1111C	.437	.472	4.646	2.795	2.205	DIN 6335 HA	▲
D1122.05.A1151C	.453	.472	4.646	2.795	2.205	DIN 6335 HA	▲
D1122.05.A1191C	.469	.472	4.646	2.795	2.205	DIN 6335 HA	▲
D1122.05.A1310C	.516	.551	4.882	3.031	2.362	DIN 6335 HA	▲
D1122.05.A1349C	.531	.551	4.882	3.031	2.362	DIN 6335 HA	▲
D1122.05.A1389C	.547	.551	4.882	3.031	2.362	DIN 6335 HA	▲
D1122.05.A1429C	.563	.630	4.882	3.031	2.362	DIN 6335 HA	▲

Dimensions in inch



P	•
M	-
K	•
N	-
S	-
H	-



Grades

▲ In stock

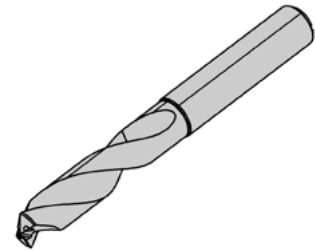
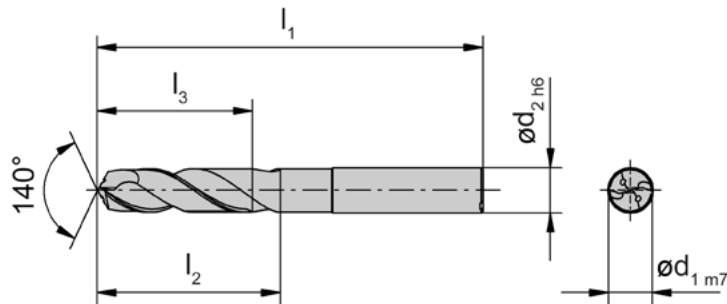
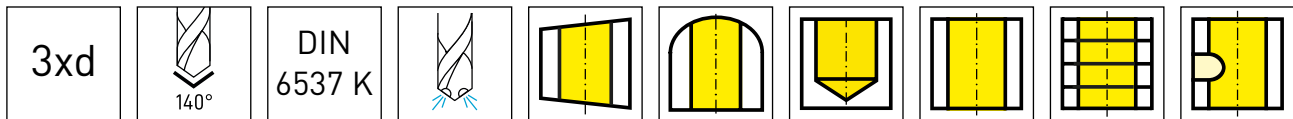
Δ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.08.A0318C	.125	.236	2.835	1.339	1.142	DIN 6335 HA	Δ
D1122.08.A0437C	.172	.236	3.189	1.693	1.417	DIN 6335 HA	Δ
D1122.08.A0476C	.187	.236	3.740	2.244	1.890	DIN 6335 HA	Δ
D1122.08.A0516C	.203	.236	3.740	2.244	1.890	DIN 6335 HA	Δ
D1122.08.A0635C	.250	.315	4.488	2.992	2.520	DIN 6335 HA	Δ
D1122.08.A0675C	.266	.315	4.488	2.992	2.520	DIN 6335 HA	Δ
D1122.08.A0754C	.297	.315	4.488	2.992	2.520	DIN 6335 HA	Δ
D1122.08.A0794C	.313	.315	4.488	2.992	2.520	DIN 6335 HA	Δ
D1122.08.A0833C	.328	.394	5.591	3.740	3.150	DIN 6335 HA	Δ
D1122.08.A0913C	.359	.394	5.591	3.740	3.150	DIN 6335 HA	Δ
D1122.08.A0953C	.375	.394	5.591	3.740	3.150	DIN 6335 HA	Δ
D1122.08.A0992C	.391	.394	5.591	3.740	3.150	DIN 6335 HA	Δ
D1122.08.A1032C	.406	.472	6.378	4.488	3.780	DIN 6335 HA	Δ
D1122.08.A1072C	.422	.472	6.378	4.488	3.780	DIN 6335 HA	Δ
D1122.08.A1111C	.437	.472	6.378	4.488	3.780	DIN 6335 HA	Δ
D1122.08.A1349C	.531	.551	7.008	5.236	4.409	DIN 6335 HA	Δ
D1122.08.A1429C	.563	.551	7.008	5.236	4.409	DIN 6335 HA	Δ

Dimensions in inch



P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

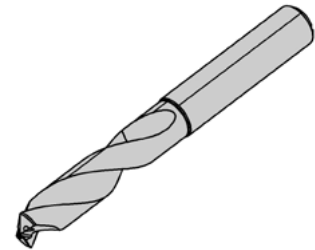
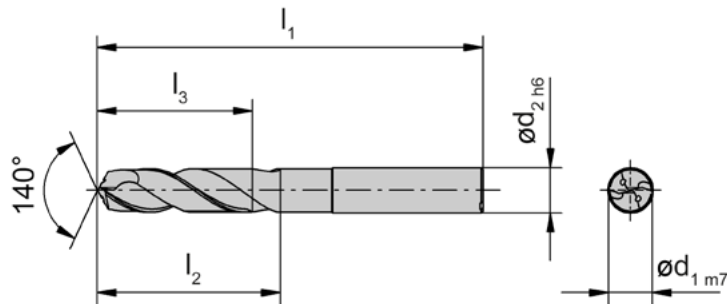
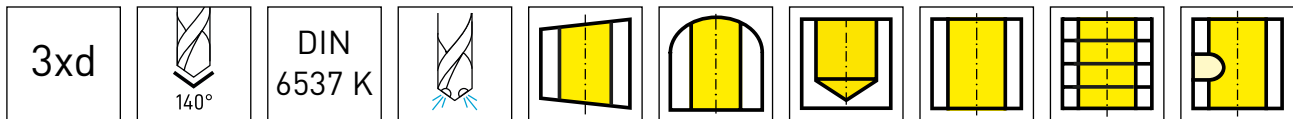
△ 2 weeks

Part number	d _{1m7}	d _{2h6}	l ₁	l ₂	l ₃	Form	ES35
D1122.03.A0300C	3	6	62	20	14	DIN 6335 HA	▲
D1122.03.A0310C	3.1	6	62	20	14	DIN 6335 HA	△
D1122.03.A0320C	3.2	6	62	20	14	DIN 6335 HA	△
D1122.03.A0330C	3.3	6	62	20	14	DIN 6335 HA	▲
D1122.03.A0340C	3.4	6	62	20	14	DIN 6335 HA	△
D1122.03.A0350C	3.5	6	62	20	14	DIN 6335 HA	▲
D1122.03.A0360C	3.6	6	62	20	14	DIN 6335 HA	△
D1122.03.A0370C	3.7	6	62	20	14	DIN 6335 HA	△
D1122.03.A0380C	3.8	6	66	24	17	DIN 6335 HA	▲
D1122.03.A0390C	3.9	6	66	24	17	DIN 6335 HA	△
D1122.03.A0400C	4	6	66	24	17	DIN 6335 HA	▲
D1122.03.A0410C	4.1	6	66	24	17	DIN 6335 HA	△
D1122.03.A0420C	4.2	6	66	24	17	DIN 6335 HA	▲
D1122.03.A0430C	4.3	6	66	24	17	DIN 6335 HA	△
D1122.03.A0440C	4.4	6	66	24	17	DIN 6335 HA	△
D1122.03.A0450C	4.5	6	66	24	17	DIN 6335 HA	▲
D1122.03.A0460C	4.6	6	66	24	17	DIN 6335 HA	△
D1122.03.A0470C	4.7	6	66	24	17	DIN 6335 HA	△
D1122.03.A0480C	4.8	6	66	28	20	DIN 6335 HA	▲
D1122.03.A0490C	4.9	6	66	28	20	DIN 6335 HA	△
D1122.03.A0500C	5	6	66	28	20	DIN 6335 HA	▲
D1122.03.A0510C	5.1	6	66	28	20	DIN 6335 HA	△
D1122.03.A0520C	5.2	6	66	28	20	DIN 6335 HA	△
D1122.03.A0530C	5.3	6	66	28	20	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

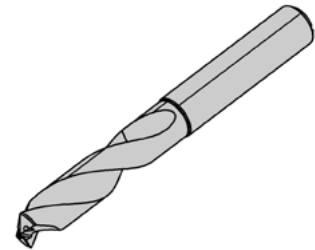
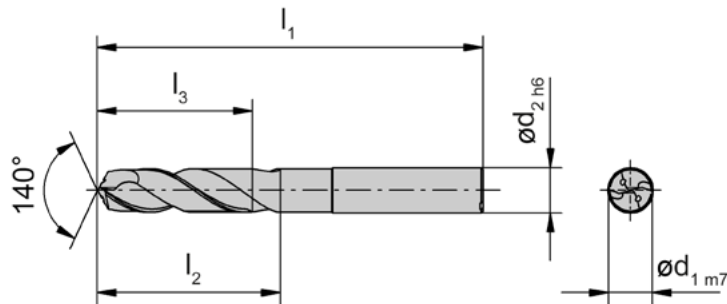
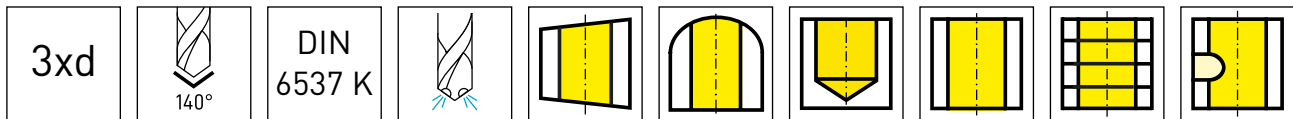
Δ 2 weeks

Part number	d _{1m7}	d _{2h6}	l ₁	l ₂	l ₃	Form	ES35
D1122.03.A0540C	5.4	6	66	28	20	DIN 6335 HA	Δ
D1122.03.A0550C	5.5	6	66	28	20	DIN 6335 HA	▲
D1122.03.A0560C	5.6	6	66	28	20	DIN 6335 HA	Δ
D1122.03.A0570C	5.7	6	66	28	20	DIN 6335 HA	Δ
D1122.03.A0580C	5.8	6	66	28	20	DIN 6335 HA	▲
D1122.03.A0590C	5.9	6	66	28	20	DIN 6335 HA	Δ
D1122.03.A0600C	6	6	66	28	20	DIN 6335 HA	▲
D1122.03.A0610C	6.1	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0620C	6.2	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0630C	6.3	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0640C	6.4	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0650C	6.5	8	79	34	24	DIN 6335 HA	▲
D1122.03.A0660C	6.6	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0670C	6.7	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0680C	6.8	8	79	34	24	DIN 6335 HA	▲
D1122.03.A0690C	6.9	8	79	34	24	DIN 6335 HA	Δ
D1122.03.A0700C	7	8	79	34	24	DIN 6335 HA	▲
D1122.03.A0710C	7.1	8	79	41	29	DIN 6335 HA	Δ
D1122.03.A0720C	7.2	8	79	41	29	DIN 6335 HA	Δ
D1122.03.A0730C	7.3	8	79	41	29	DIN 6335 HA	Δ
D1122.03.A0740C	7.4	8	79	41	29	DIN 6335 HA	Δ
D1122.03.A0750C	7.5	8	79	41	29	DIN 6335 HA	▲
D1122.03.A0760C	7.6	8	79	41	29	DIN 6335 HA	Δ
D1122.03.A0770C	7.7	8	79	41	29	DIN 6335 HA	Δ
D1122.03.A0780C	7.8	8	79	41	29	DIN 6335 HA	▲
D1122.03.A0790C	7.9	8	79	41	29	DIN 6335 HA	Δ

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

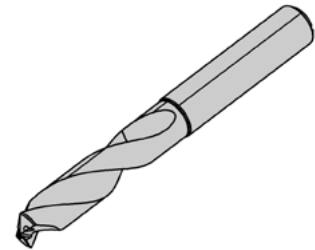
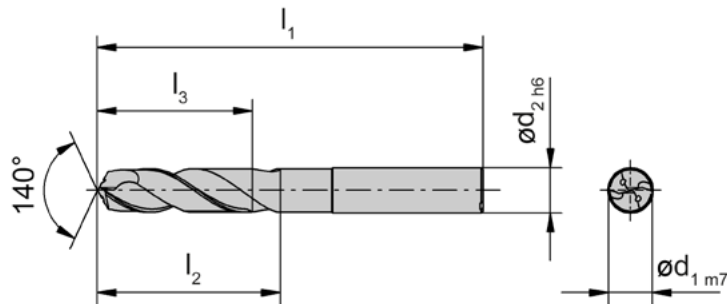
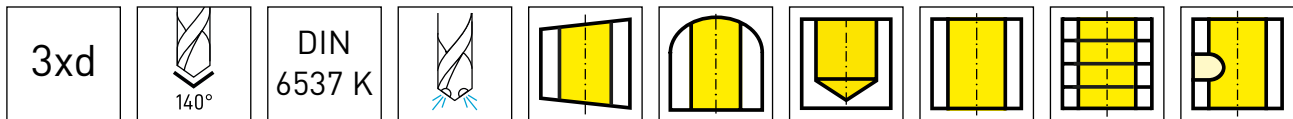
△ 2 weeks

Part number	d _{1m7}	d _{2h6}	l ₁	l ₂	l ₃	Form	ES35
D1122.03.A0800C	8	8	79	41	29	DIN 6335 HA	▲
D1122.03.A0810C	8.1	10	89	47	35	DIN 6335 HA	△
D1122.03.A0820C	8.2	10	89	47	35	DIN 6335 HA	△
D1122.03.A0830C	8.3	10	89	47	35	DIN 6335 HA	△
D1122.03.A0840C	8.4	10	89	47	35	DIN 6335 HA	△
D1122.03.A0850C	8.5	10	89	47	35	DIN 6335 HA	▲
D1122.03.A0860C	8.6	10	89	47	35	DIN 6335 HA	△
D1122.03.A0870C	8.7	10	89	47	35	DIN 6335 HA	△
D1122.03.A0880C	8.8	10	89	47	35	DIN 6335 HA	▲
D1122.03.A0890C	8.9	10	89	47	35	DIN 6335 HA	△
D1122.03.A0900C	9	10	89	47	35	DIN 6335 HA	▲
D1122.03.A0910C	9.1	10	89	47	35	DIN 6335 HA	△
D1122.03.A0920C	9.2	10	89	47	35	DIN 6335 HA	△
D1122.03.A0930C	9.3	10	89	47	35	DIN 6335 HA	△
D1122.03.A0940C	9.4	10	89	47	35	DIN 6335 HA	△
D1122.03.A0950C	9.5	10	89	47	35	DIN 6335 HA	▲
D1122.03.A0960C	9.6	10	89	47	35	DIN 6335 HA	△
D1122.03.A0970C	9.7	10	89	47	35	DIN 6335 HA	△
D1122.03.A0980C	9.8	10	89	47	35	DIN 6335 HA	▲
D1122.03.A0990C	9.9	10	89	47	35	DIN 6335 HA	△
D1122.03.A1000C	10	10	89	47	35	DIN 6335 HA	▲
D1122.03.A1010C	10.1	12	102	55	40	DIN 6335 HA	△
D1122.03.A1020C	10.2	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1030C	10.3	12	102	55	40	DIN 6335 HA	△
D1122.03.A1040C	10.4	12	102	55	40	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

△ 2 weeks

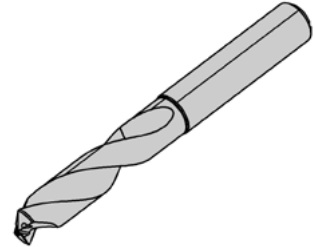
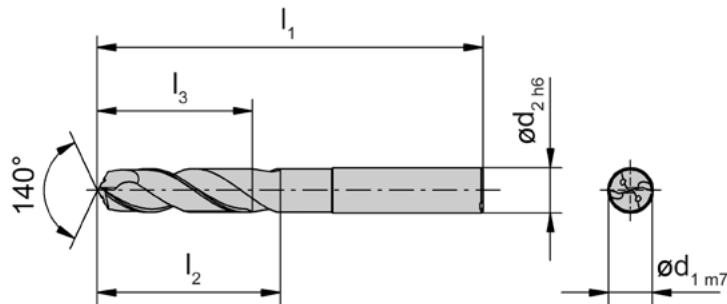
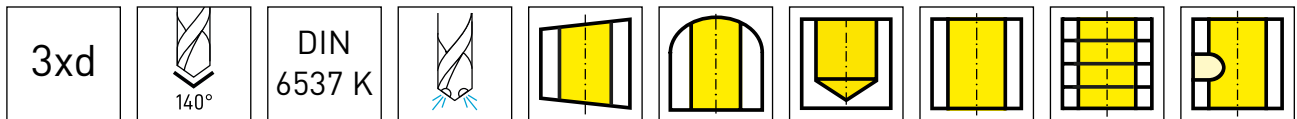
Part number	d _{1m7}	d _{2h6}	l ₁	l ₂	l ₃	Form	ES35
D1122.03.A1050C	10.5	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1060C	10.6	12	102	55	40	DIN 6335 HA	△
D1122.03.A1070C	10.7	12	102	55	40	DIN 6335 HA	△
D1122.03.A1080C	10.8	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1090C	10.9	12	102	55	40	DIN 6335 HA	△
D1122.03.A1100C	11	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1110C	11.1	12	102	55	40	DIN 6335 HA	△
D1122.03.A1120C	11.2	12	102	55	40	DIN 6335 HA	△
D1122.03.A1130C	11.3	12	102	55	40	DIN 6335 HA	△
D1122.03.A1140C	11.4	12	102	55	40	DIN 6335 HA	△
D1122.03.A1150C	11.5	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1160C	11.6	12	102	55	40	DIN 6335 HA	△
D1122.03.A1170C	11.7	12	102	55	40	DIN 6335 HA	△
D1122.03.A1180C	11.8	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1190C	11.9	12	102	55	40	DIN 6335 HA	△
D1122.03.A1200C	12	12	102	55	40	DIN 6335 HA	▲
D1122.03.A1210C	12.1	14	107	60	43	DIN 6335 HA	△
D1122.03.A1220C	12.2	14	107	60	43	DIN 6335 HA	△
D1122.03.A1230C	12.3	14	107	60	43	DIN 6335 HA	△
D1122.03.A1240C	12.4	14	107	60	43	DIN 6335 HA	△
D1122.03.A1250C	12.5	14	107	60	43	DIN 6335 HA	▲
D1122.03.A1260C	12.6	14	107	60	43	DIN 6335 HA	△
D1122.03.A1270C	12.7	14	107	60	43	DIN 6335 HA	△
D1122.03.A1280C	12.8	14	107	60	43	DIN 6335 HA	▲
D1122.03.A1290C	12.9	14	107	60	43	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-

B



Grades

▲ In stock

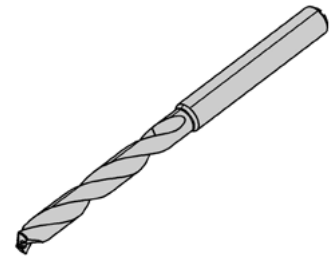
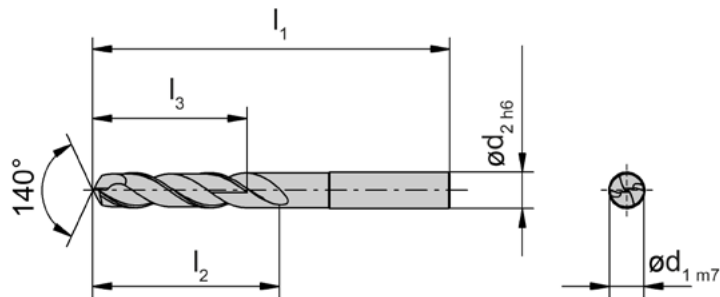
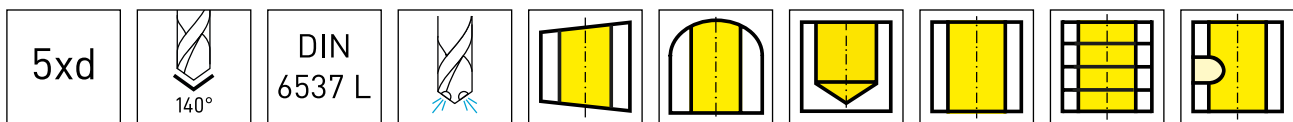
△ 2 weeks

Part number	d _{1m7}	d _{2h6}	l ₁	l ₂	l ₃	Form	ES35
D1122.03.A1300C	13	14	107	60	43	DIN 6335 HA	▲
D1122.03.A1350C	13.5	14	107	60	43	DIN 6335 HA	▲
D1122.03.A1380C	13.8	14	107	60	43	DIN 6335 HA	▲
D1122.03.A1400C	14	14	107	60	43	DIN 6335 HA	▲
D1122.03.A1450C	14.5	16	115	65	45	DIN 6335 HA	▲
D1122.03.A1480C	14.8	16	115	65	45	DIN 6335 HA	▲
D1122.03.A1500C	15	16	115	65	45	DIN 6335 HA	▲
D1122.03.A1550C	15.5	16	115	65	45	DIN 6335 HA	▲
D1122.03.A1580C	15.8	16	115	65	45	DIN 6335 HA	▲
D1122.03.A1600C	16	16	115	65	45	DIN 6335 HA	▲
D1122.03.A1650C	16.5	18	123	73	51	DIN 6335 HA	▲
D1122.03.A1680C	16.8	18	123	73	51	DIN 6335 HA	▲
D1122.03.A1700C	17	18	123	73	51	DIN 6335 HA	▲
D1122.03.A1750C	17.5	18	123	73	51	DIN 6335 HA	▲
D1122.03.A1780C	17.8	18	123	73	51	DIN 6335 HA	▲
D1122.03.A1800C	18	18	123	73	51	DIN 6335 HA	▲
D1122.03.A1850C	18.5	20	131	79	55	DIN 6335 HA	▲
D1122.03.A1880C	18.8	20	131	79	55	DIN 6335 HA	▲
D1122.03.A1900C	19	20	131	79	55	DIN 6335 HA	▲
D1122.03.A1950C	19.5	20	131	79	55	DIN 6335 HA	▲
D1122.03.A1980C	19.8	20	131	79	55	DIN 6335 HA	▲
D1122.03.A2000C	20	20	131	79	55	DIN 6335 HA	▲

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	•
M	-
K	•
N	-
S	-
H	-



Grades

▲ In stock

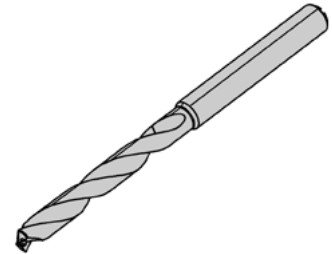
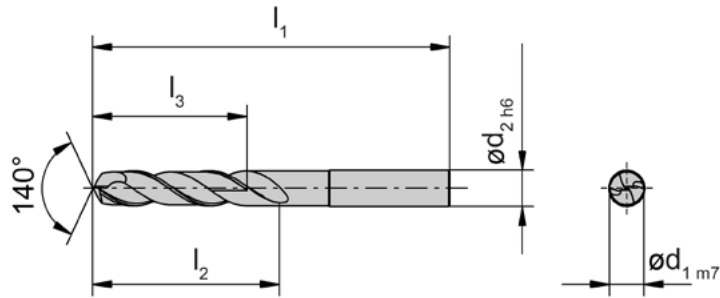
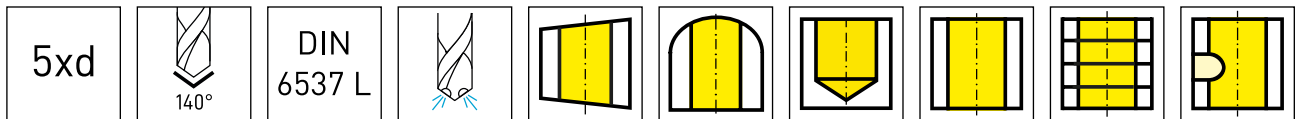
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.05.A0300C	3	6	66	28	23	DIN 6335 HA	▲
D1122.05.A0310C	3.1	6	66	28	23	DIN 6335 HA	△
D1122.05.A0320C	3.2	6	66	28	23	DIN 6335 HA	△
D1122.05.A0330C	3.3	6	66	28	23	DIN 6335 HA	▲
D1122.05.A0340C	3.4	6	66	28	23	DIN 6335 HA	△
D1122.05.A0350C	3.5	6	66	28	23	DIN 6335 HA	▲
D1122.05.A0360C	3.6	6	66	28	23	DIN 6335 HA	△
D1122.05.A0370C	3.7	6	66	28	23	DIN 6335 HA	△
D1122.05.A0380C	3.8	6	74	36	29	DIN 6335 HA	▲
D1122.05.A0390C	3.9	6	74	36	29	DIN 6335 HA	△
D1122.05.A0400C	4	6	74	36	29	DIN 6335 HA	▲
D1122.05.A0410C	4.1	6	74	36	29	DIN 6335 HA	△
D1122.05.A0420C	4.2	6	74	36	29	DIN 6335 HA	▲
D1122.05.A0430C	4.3	6	74	36	29	DIN 6335 HA	△
D1122.05.A0440C	4.4	6	74	36	29	DIN 6335 HA	△
D1122.05.A0450C	4.5	6	74	36	29	DIN 6335 HA	▲
D1122.05.A0460C	4.6	6	74	36	29	DIN 6335 HA	△
D1122.05.A0470C	4.7	6	74	36	29	DIN 6335 HA	△
D1122.05.A0480C	4.8	6	82	44	35	DIN 6335 HA	▲
D1122.05.A0490C	4.9	6	82	44	35	DIN 6335 HA	△
D1122.05.A0500C	5	6	82	44	35	DIN 6335 HA	▲
D1122.05.A0510C	5.4	6	82	44	35	DIN 6335 HA	▲
D1122.05.A0520C	5.2	6	82	44	35	DIN 6335 HA	△
D1122.05.A0530C	5.3	6	82	44	35	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

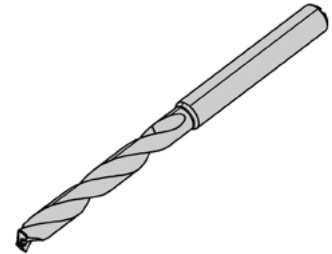
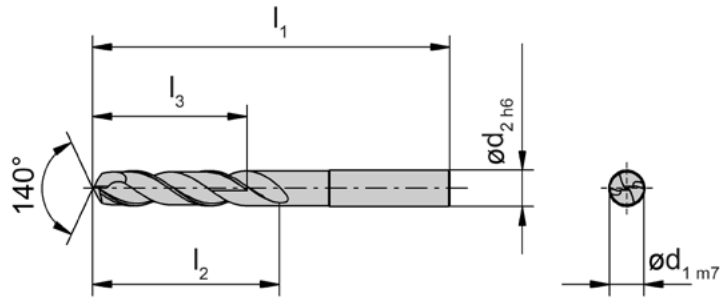
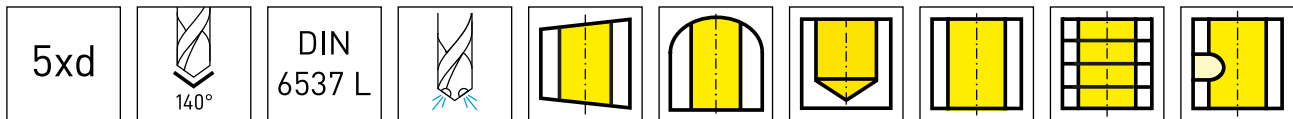
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.05.A0540C	5.4	6	82	44	35	DIN 6335 HA	△
D1122.05.A0550C	5.5	6	82	44	35	DIN 6335 HA	▲
D1122.05.A0560C	5.6	6	82	44	35	DIN 6335 HA	△
D1122.05.A0570C	5.7	6	82	44	35	DIN 6335 HA	△
D1122.05.A0580C	5.8	6	82	44	35	DIN 6335 HA	▲
D1122.05.A0590C	5.9	6	82	44	35	DIN 6335 HA	△
D1122.05.A0600C	6	6	82	44	35	DIN 6335 HA	▲
D1122.05.A0610C	6.1	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0620C	6.2	8	91	53	43	DIN 6335 HA	△
D1122.05.A0630C	6.3	8	91	53	43	DIN 6335 HA	△
D1122.05.A0640C	6.4	8	91	53	43	DIN 6335 HA	△
D1122.05.A0650C	6.5	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0660C	6.6	8	91	53	43	DIN 6335 HA	△
D1122.05.A0670C	6.7	8	91	53	43	DIN 6335 HA	△
D1122.05.A0680C	6.8	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0690C	6.9	8	91	53	43	DIN 6335 HA	△
D1122.05.A0700C	7	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0710C	7.1	8	91	53	43	DIN 6335 HA	△
D1122.05.A0720C	7.2	8	91	53	43	DIN 6335 HA	△
D1122.05.A0730C	7.3	8	91	53	43	DIN 6335 HA	△
D1122.05.A0740C	7.4	8	91	53	43	DIN 6335 HA	△
D1122.05.A0750C	7.5	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0760C	7.6	8	91	53	43	DIN 6335 HA	△
D1122.05.A0770C	7.7	8	91	53	43	DIN 6335 HA	△
D1122.05.A0780C	7.8	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0790C	7.9	8	91	53	43	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

Δ 2 weeks

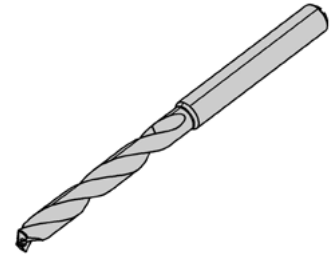
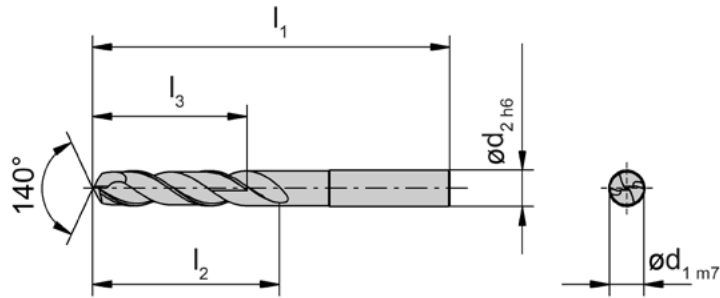
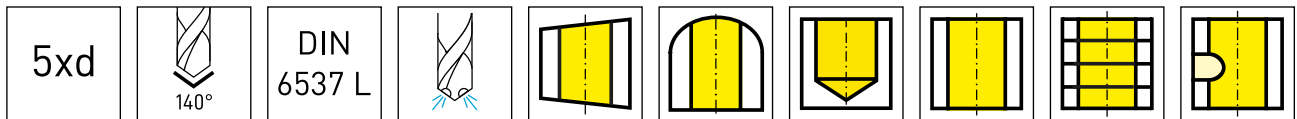
Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.05.A0800C	8	8	91	53	43	DIN 6335 HA	▲
D1122.05.A0810C	8.1	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0820C	8.2	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0830C	8.3	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0840C	8.4	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0850C	8.5	10	103	61	49	DIN 6335 HA	▲
D1122.05.A0860C	8.6	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0870C	8.7	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0880C	8.8	10	103	61	49	DIN 6335 HA	▲
D1122.05.A0890C	8.9	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0900C	9	10	103	61	49	DIN 6335 HA	▲
D1122.05.A0910C	9.1	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0920C	9.2	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0930C	9.3	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0940C	9.4	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0950C	9.5	10	103	61	49	DIN 6335 HA	▲
D1122.05.A0960C	9.6	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0970C	9.7	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A0980C	9.8	10	103	61	49	DIN 6335 HA	▲
D1122.05.A0990C	9.9	10	103	61	49	DIN 6335 HA	Δ
D1122.05.A1000C	10	10	103	61	49	DIN 6335 HA	▲
D1122.05.A1010C	10.1	12	118	71	56	DIN 6335 HA	Δ
D1122.05.A1020C	10.2	12	118	71	56	DIN 6335 HA	▲
D1122.05.A1030C	10.3	12	118	71	56	DIN 6335 HA	Δ
D1122.05.A1040C	10.4	12	118	71	56	DIN 6335 HA	Δ
D1122.05.A1050C	10.5	12	118	71	56	DIN 6335 HA	▲

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-

B



Grades

▲ In stock

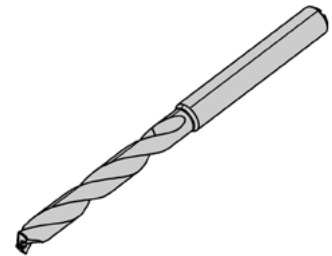
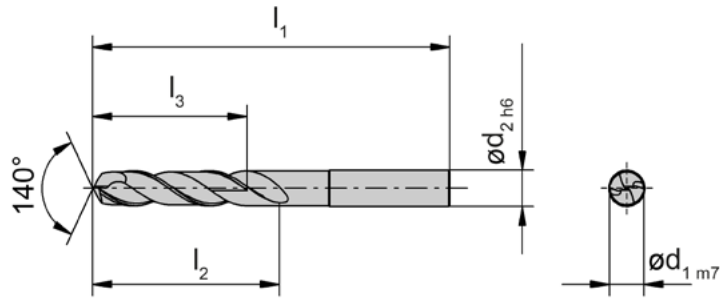
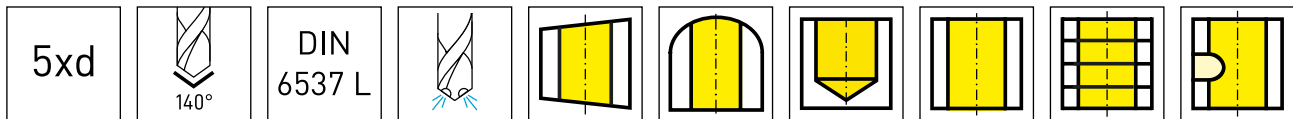
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.05.A1060C	10.6	12	118	71	56	DIN 6335 HA	△
D1122.05.A1070C	10.7	12	118	71	56	DIN 6335 HA	△
D1122.05.A1080C	10.8	12	118	71	56	DIN 6335 HA	▲
D1122.05.A1090C	10.9	12	118	71	56	DIN 6335 HA	△
D1122.05.A1100C	11	12	118	71	56	DIN 6335 HA	▲
D1122.05.A1110C	11.1	12	118	71	56	DIN 6335 HA	△
D1122.05.A1120C	11.2	12	118	71	56	DIN 6335 HA	△
D1122.05.A1130C	11.3	12	118	71	56	DIN 6335 HA	△
D1122.05.A1140C	11.4	12	118	71	56	DIN 6335 HA	△
D1122.05.A1150C	11.5	12	118	71	56	DIN 6335 HA	▲
D1122.05.A1160C	11.6	12	118	71	56	DIN 6335 HA	△
D1122.05.A1170C	11.7	12	118	71	56	DIN 6335 HA	△
D1122.05.A1180C	11.8	12	118	71	56	DIN 6335 HA	▲
D1122.05.A1190C	11.9	12	118	71	56	DIN 6335 HA	△
D1122.05.A1200C	12	12	118	71	56	DIN 6335 HA	▲
D1122.05.A1210C	12.1	14	124	77	60	DIN 6335 HA	△
D1122.05.A1220C	12.2	14	124	77	60	DIN 6335 HA	△
D1122.05.A1230C	12.3	14	124	77	60	DIN 6335 HA	△
D1122.05.A1240C	12.4	14	124	77	60	DIN 6335 HA	△
D1122.05.A1250C	12.5	14	124	77	60	DIN 6335 HA	▲
D1122.05.A1260C	12.6	14	124	77	60	DIN 6335 HA	△
D1122.05.A1270C	12.7	14	124	77	60	DIN 6335 HA	△
D1122.05.A1280C	12.8	14	124	77	60	DIN 6335 HA	▲
D1122.05.A1290C	12.9	14	124	77	60	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

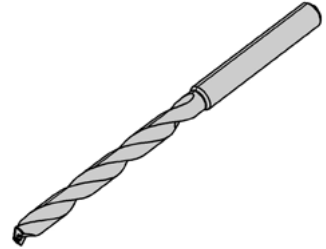
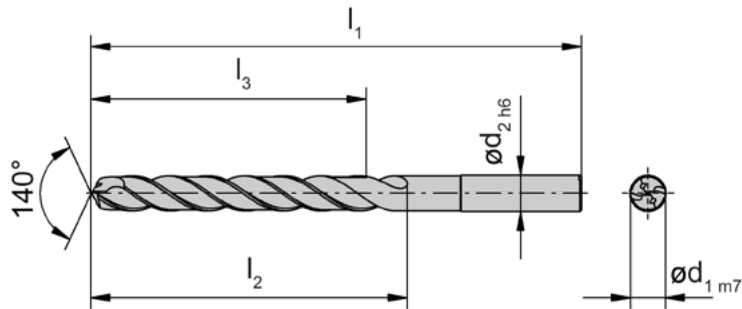
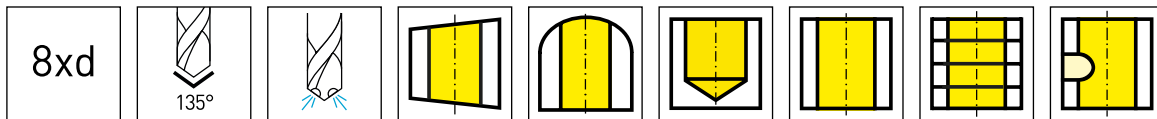
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.05.A1300C	13	14	124	77	60	DIN 6335 HA	▲
D1122.05.A1350C	13.5	14	124	77	60	DIN 6335 HA	▲
D1122.05.A1380C	13.8	14	124	77	60	DIN 6335 HA	▲
D1122.05.A1400C	14	14	124	77	60	DIN 6335 HA	▲
D1122.05.A1450C	14.5	16	133	83	63	DIN 6335 HA	▲
D1122.05.A1480C	14.8	16	133	83	63	DIN 6335 HA	▲
D1122.05.A1500C	15	16	133	83	63	DIN 6335 HA	▲
D1122.05.A1550C	15.5	16	133	83	63	DIN 6335 HA	▲
D1122.05.A1580C	15.8	16	133	83	63	DIN 6335 HA	▲
D1122.05.A1600C	16	16	133	83	63	DIN 6335 HA	▲
D1122.05.A1650C	16.5	18	143	93	71	DIN 6335 HA	▲
D1122.05.A1680C	16.8	18	143	93	71	DIN 6335 HA	▲
D1122.05.A1700C	17	18	143	93	71	DIN 6335 HA	▲
D1122.05.A1750C	17.5	18	143	93	71	DIN 6335 HA	▲
D1122.05.A1780C	17.8	18	143	93	71	DIN 6335 HA	▲
D1122.05.A1800C	18	18	143	93	71	DIN 6335 HA	▲
D1122.05.A1850C	18.5	20	153	101	77	DIN 6335 HA	▲
D1122.05.A1880C	18.8	20	153	101	77	DIN 6335 HA	▲
D1122.05.A1900C	19	20	153	101	77	DIN 6335 HA	▲
D1122.05.A1950C	19.5	20	153	101	77	DIN 6335 HA	▲
D1122.05.A1980C	19.8	20	153	101	77	DIN 6335 HA	▲
D1122.05.A2000C	20	20	153	101	77	DIN 6335 HA	▲

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	•
M	-
K	•
N	-
S	-
H	-



Grades

▲ In stock

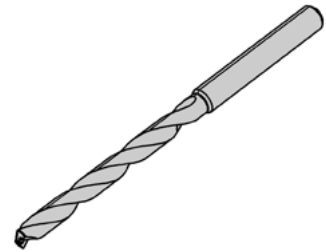
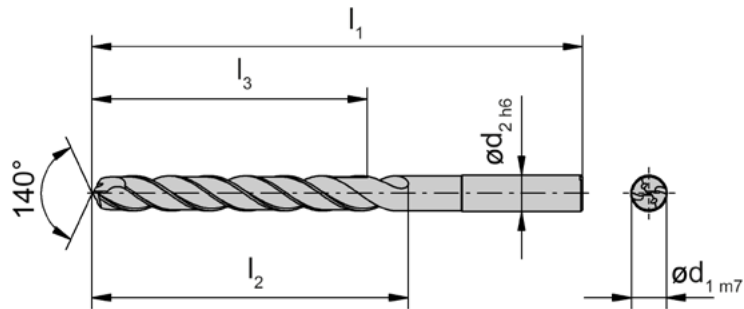
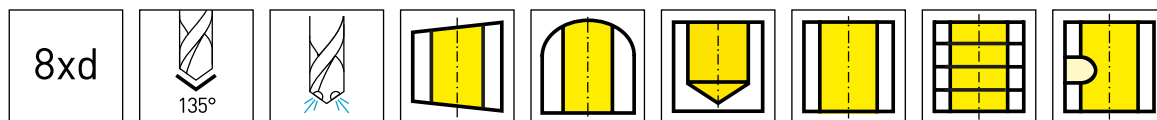
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.08.A0300C	3	6	72	34	29	DIN 6335 HA	▲
D1122.08.A0310C	3.1	6	72	34	29	DIN 6335 HA	△
D1122.08.A0320C	3.2	6	72	34	29	DIN 6335 HA	△
D1122.08.A0330C	3.3	6	72	34	29	DIN 6335 HA	▲
D1122.08.A0340C	3.4	6	72	34	29	DIN 6335 HA	△
D1122.08.A0350C	3.5	6	72	34	29	DIN 6335 HA	▲
D1122.08.A0360C	3.6	6	72	34	29	DIN 6335 HA	△
D1122.08.A0370C	3.7	6	72	34	29	DIN 6335 HA	△
D1122.08.A0380C	3.8	6	81	43	36	DIN 6335 HA	▲
D1122.08.A0390C	3.9	6	81	43	36	DIN 6335 HA	△
D1122.08.A0400C	4	6	81	43	36	DIN 6335 HA	▲
D1122.08.A0410C	4.1	6	81	43	36	DIN 6335 HA	△
D1122.08.A0420C	4.2	6	81	43	36	DIN 6335 HA	▲
D1122.08.A0430C	4.3	6	81	43	36	DIN 6335 HA	△
D1122.08.A0440C	4.4	6	81	43	36	DIN 6335 HA	△
D1122.08.A0450C	4.5	6	81	43	36	DIN 6335 HA	▲
D1122.08.A0460C	4.6	6	81	43	36	DIN 6335 HA	△
D1122.08.A0470C	4.7	6	81	43	36	DIN 6335 HA	▲
D1122.08.A0480C	4.8	6	95	57	48	DIN 6335 HA	▲
D1122.08.A0490C	4.9	6	95	57	48	DIN 6335 HA	▲
D1122.08.A0500C	5	6	95	57	48	DIN 6335 HA	▲
D1122.08.A0510C	5.1	6	95	57	48	DIN 6335 HA	△
D1122.08.A0520C	5.2	6	95	57	48	DIN 6335 HA	△
D1122.08.A0530C	5.3	6	95	57	48	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

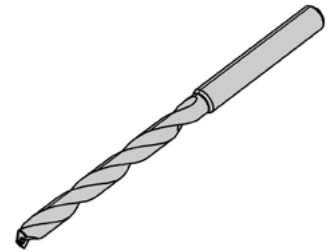
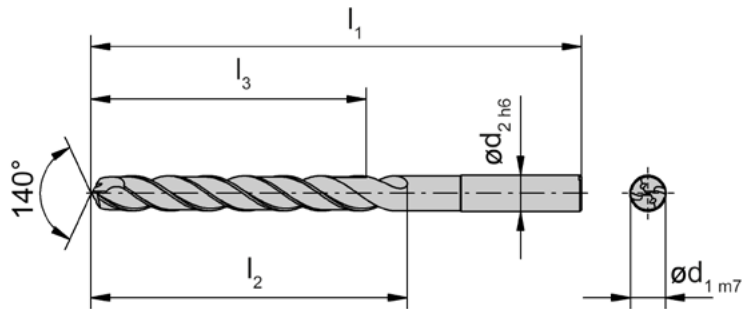
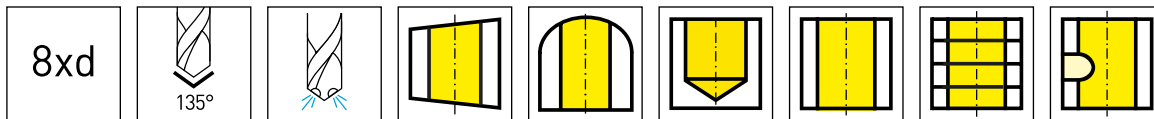
Δ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.08.A0540C	5.4	6	95	57	48	DIN 6335 HA	Δ
D1122.08.A0550C	5.5	6	95	57	48	DIN 6335 HA	▲
D1122.08.A0560C	5.6	6	95	57	48	DIN 6335 HA	Δ
D1122.08.A0570C	5.7	6	95	57	48	DIN 6335 HA	Δ
D1122.08.A0580C	5.8	6	95	57	48	DIN 6335 HA	▲
D1122.08.A0590C	5.9	6	95	57	48	DIN 6335 HA	Δ
D1122.08.A0600C	6	6	95	57	48	DIN 6335 HA	▲
D1122.08.A0610C	6.1	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0620C	6.2	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0630C	6.3	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0640C	6.4	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0650C	6.5	8	114	76	64	DIN 6335 HA	▲
D1122.08.A0660C	6.6	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0670C	6.7	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0680C	6.8	8	114	76	64	DIN 6335 HA	▲
D1122.08.A0690C	6.9	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0700C	7	8	114	76	64	DIN 6335 HA	▲
D1122.08.A0710C	7.1	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0720C	7.2	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0730C	7.3	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0740C	7.4	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0750C	7.5	8	114	76	64	DIN 6335 HA	▲
D1122.08.A0760C	7.6	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0770C	7.7	8	114	76	64	DIN 6335 HA	Δ
D1122.08.A0780C	7.8	8	114	76	64	DIN 6335 HA	▲
D1122.08.A0790C	7.9	8	114	76	64	DIN 6335 HA	Δ

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

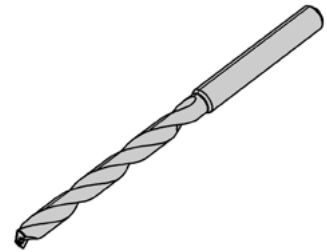
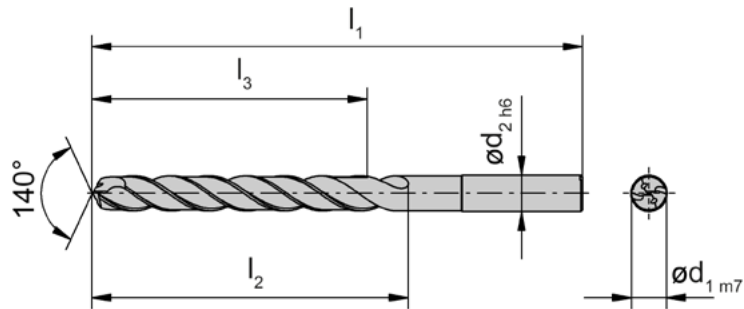
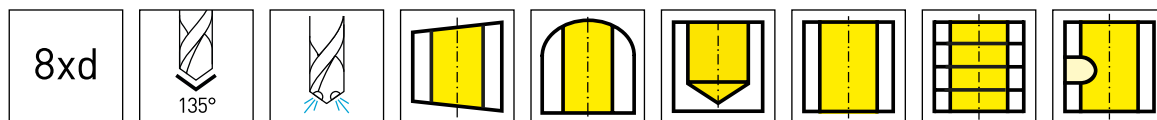
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.08.A0800C	8	8	114	76	64	DIN 6335 HA	▲
D1122.08.A0810C	8.1	10	142	95	80	DIN 6335 HA	△
D1122.08.A0820C	8.2	10	142	95	80	DIN 6335 HA	△
D1122.08.A0830C	8.3	10	142	95	80	DIN 6335 HA	△
D1122.08.A0840C	8.4	10	142	95	80	DIN 6335 HA	△
D1122.08.A0850C	8.5	10	142	95	80	DIN 6335 HA	▲
D1122.08.A0860C	8.6	10	142	95	80	DIN 6335 HA	△
D1122.08.A0870C	8.7	10	142	95	80	DIN 6335 HA	△
D1122.08.A0880C	8.8	10	142	95	80	DIN 6335 HA	▲
D1122.08.A0890C	8.9	10	142	95	80	DIN 6335 HA	△
D1122.08.A0900C	9	10	142	95	80	DIN 6335 HA	▲
D1122.08.A0910C	9.1	10	142	95	80	DIN 6335 HA	△
D1122.08.A0920C	9.2	10	142	95	80	DIN 6335 HA	△
D1122.08.A0930C	9.3	10	142	95	80	DIN 6335 HA	△
D1122.08.A0940C	9.4	10	142	95	80	DIN 6335 HA	△
D1122.08.A0950C	9.5	10	142	95	80	DIN 6335 HA	▲
D1122.08.A0960C	9.6	10	142	95	80	DIN 6335 HA	△
D1122.08.A0970C	9.7	10	142	95	80	DIN 6335 HA	△
D1122.08.A0980C	9.8	10	142	95	80	DIN 6335 HA	▲
D1122.08.A0990C	9.9	10	142	95	80	DIN 6335 HA	△
D1122.08.A1000C	10	10	142	95	80	DIN 6335 HA	▲
D1122.08.A1010C	10.1	12	162	114	96	DIN 6335 HA	△
D1122.08.A1020C	10.2	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1030C	10.3	12	162	114	96	DIN 6335 HA	△
D1122.08.A1040C	10.4	12	162	114	96	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

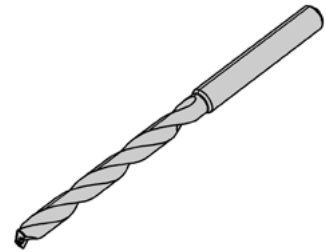
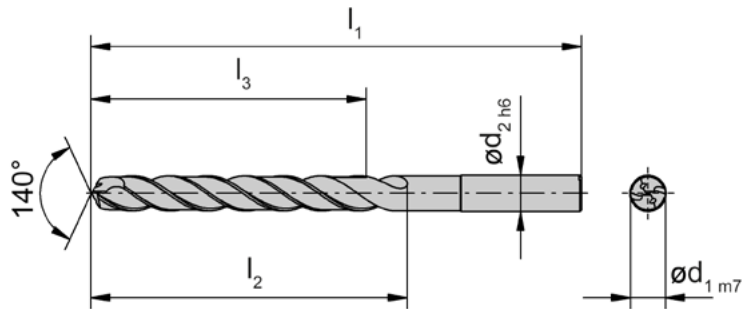
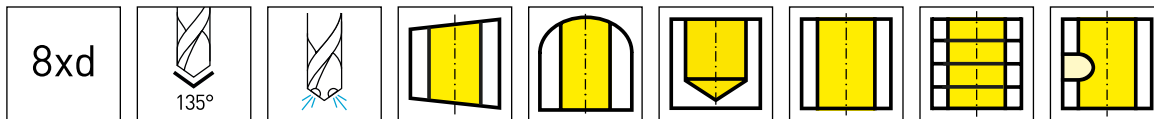
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.08.A1050C	10.5	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1060C	10.6	12	162	114	96	DIN 6335 HA	△
D1122.08.A1070C	10.7	12	162	114	96	DIN 6335 HA	△
D1122.08.A1080C	10.8	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1090C	10.9	12	162	114	96	DIN 6335 HA	△
D1122.08.A1100C	11	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1110C	11.1	12	162	114	96	DIN 6335 HA	△
D1122.08.A1120C	11.2	12	162	114	96	DIN 6335 HA	△
D1122.08.A1130C	11.3	12	162	114	96	DIN 6335 HA	△
D1122.08.A1140C	11.4	12	162	114	96	DIN 6335 HA	△
D1122.08.A1150C	11.5	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1160C	11.6	12	162	114	96	DIN 6335 HA	△
D1122.08.A1170C	11.7	12	162	114	96	DIN 6335 HA	△
D1122.08.A1180C	11.8	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1190C	11.9	12	162	114	96	DIN 6335 HA	△
D1122.08.A1200C	12	12	162	114	96	DIN 6335 HA	▲
D1122.08.A1210C	12.1	14	178	133	112	DIN 6335 HA	△
D1122.08.A1220C	12.2	14	178	133	112	DIN 6335 HA	△
D1122.08.A1230C	12.3	14	178	133	112	DIN 6335 HA	△
D1122.08.A1240C	12.4	14	178	133	112	DIN 6335 HA	△
D1122.08.A1250C	12.5	14	178	133	112	DIN 6335 HA	▲
D1122.08.A1260C	12.6	14	178	133	112	DIN 6335 HA	△
D1122.08.A1270C	12.7	14	178	133	112	DIN 6335 HA	△
D1122.08.A1280C	12.8	14	178	133	112	DIN 6335 HA	▲
D1122.08.A1290C	12.9	14	178	133	112	DIN 6335 HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	●
M	-
K	●
N	-
S	-
H	-



Grades

▲ In stock

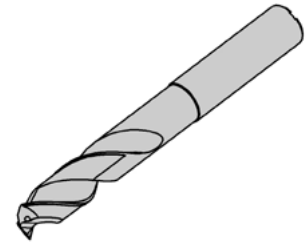
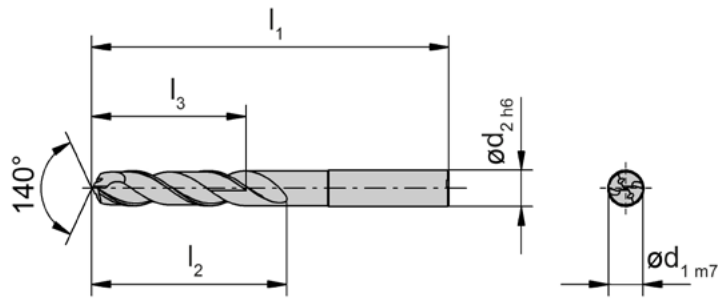
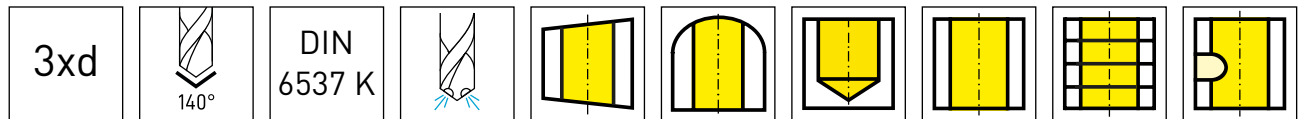
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	ES35
D1122.08.A1300C	13	14	178	133	112	DIN 6335 HA	▲
D1122.08.A1350C	13.5	14	178	133	112	DIN 6335 HA	▲
D1122.08.A1380C	13.8	14	178	133	112	DIN 6335 HA	▲
D1122.08.A1400C	14	14	178	133	112	DIN 6335 HA	▲
D1122.08.A1450C	14.5	16	203	152	128	DIN 6335 HA	▲
D1122.08.A1480C	14.8	16	203	152	128	DIN 6335 HA	▲
D1122.08.A1500C	15	16	203	152	128	DIN 6335 HA	▲
D1122.08.A1550C	15.5	16	203	152	128	DIN 6335 HA	▲
D1122.08.A1580C	15.8	16	203	152	128	DIN 6335 HA	▲
D1122.08.A1600C	16	16	203	152	128	DIN 6335 HA	▲
D1122.08.A1650C	16.5	18	222	171	144	DIN 6335 HA	▲
D1122.08.A1680C	16.8	18	222	171	144	DIN 6335 HA	▲
D1122.08.A1700C	17	18	222	171	144	DIN 6335 HA	▲
D1122.08.A1750C	17.5	18	222	171	144	DIN 6335 HA	▲
D1122.08.A1780C	17.8	18	222	171	144	DIN 6335 HA	▲
D1122.08.A1800C	18	18	222	171	144	DIN 6335 HA	▲
D1122.08.A1850C	18.5	20	243	190	160	DIN 6335 HA	▲
D1122.08.A1880C	18.8	20	243	190	160	DIN 6335 HA	▲
D1122.08.A1900C	19	20	243	190	160	DIN 6335 HA	▲
D1122.08.A1950C	19.5	20	243	190	160	DIN 6335 HA	▲
D1122.08.A1980C	19.8	20	243	190	160	DIN 6335 HA	▲
D1122.08.A2000C	20	20	243	190	160	DIN 6335 HA	▲

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	•
M	-
K	•
N	-
S	-
H	-



Grades

▲ In stock

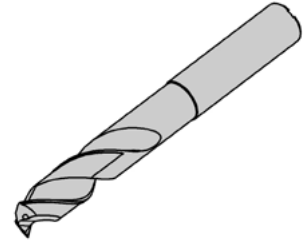
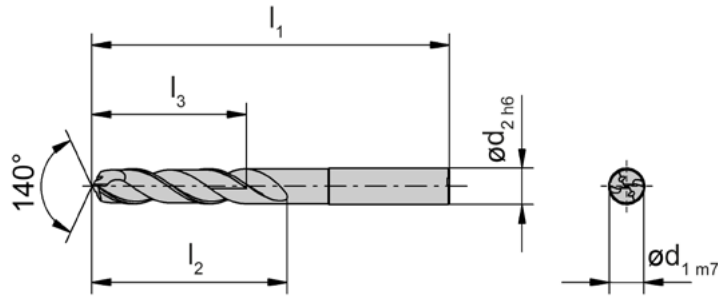
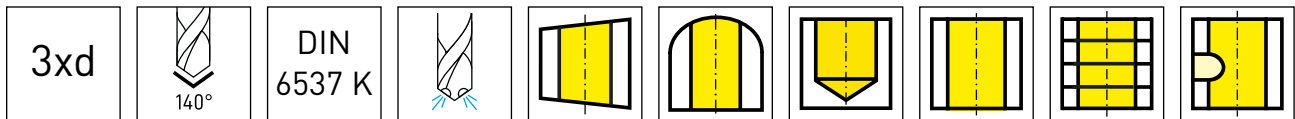
Δ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.03.01.03000	3	6	62	20	14	HA	▲
DDM.03.01.03100	3.1	6	62	20	14	HA	Δ
DDM.03.01.03200	3.2	6	62	20	14	HA	Δ
DDM.03.01.03300	3.3	6	62	20	14	HA	▲
DDM.03.01.03400	3.4	6	62	20	14	HA	Δ
DDM.03.01.03500	3.5	6	62	20	14	HA	Δ
DDM.03.01.03600	3.6	6	62	20	14	HA	Δ
DDM.03.01.03700	3.7	6	62	20	14	HA	Δ
DDM.03.01.03800	3.8	6	66	24	17	HA	Δ
DDM.03.01.03900	3.9	6	66	24	17	HA	Δ

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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Grades

▲ In stock

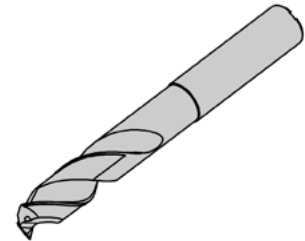
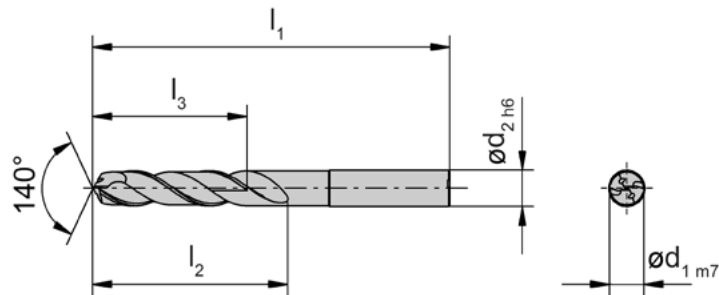
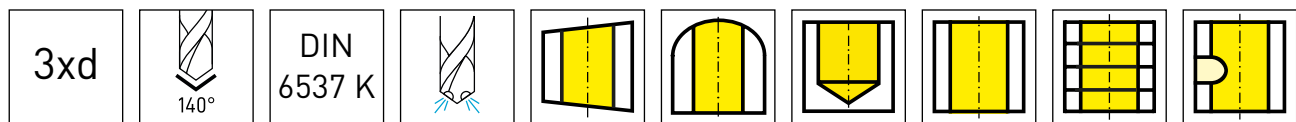
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.03.01.04000	4	6	66	24	17	HA	▲
DDM.03.01.04100	4.1	6	66	24	17	HA	△
DDM.03.01.04200	4.2	6	66	24	17	HA	▲
DDM.03.01.04300	4.3	6	66	24	17	HA	△
DDM.03.01.04400	4.4	6	66	24	17	HA	△
DDM.03.01.04500	4.5	6	66	24	17	HA	▲
DDM.03.01.04600	4.6	6	66	24	17	HA	△
DDM.03.01.04650	4.65	6	66	24	17	HA	△
DDM.03.01.04700	4.7	6	66	24	17	HA	△
DDM.03.01.04800	4.8	6	66	28	20	HA	▲
DDM.03.01.04900	4.9	6	66	28	20	HA	△
DDM.03.01.05000	5	6	66	28	20	HA	▲
DDM.03.01.05100	5.1	6	66	28	20	HA	△
DDM.03.01.05200	5.2	6	66	28	20	HA	△
DDM.03.01.05300	5.3	6	66	28	20	HA	△
DDM.03.01.05400	5.4	6	66	28	20	HA	△
DDM.03.01.05500	5.5	6	66	28	20	HA	▲
DDM.03.01.05550	5.55	6	66	28	20	HA	△
DDM.03.01.05600	5.6	6	66	28	20	HA	△
DDM.03.01.05700	5.7	6	66	28	20	HA	△
DDM.03.01.05800	5.8	6	66	28	20	HA	▲
DDM.03.01.05900	5.9	6	66	28	20	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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M	•
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Grades

▲ In stock

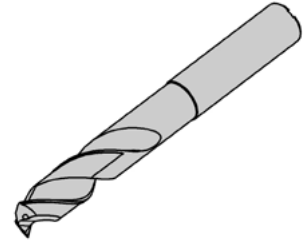
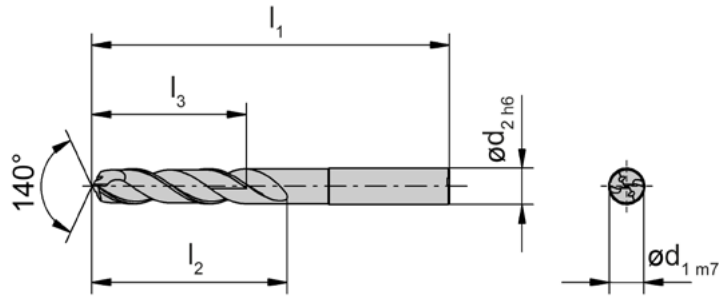
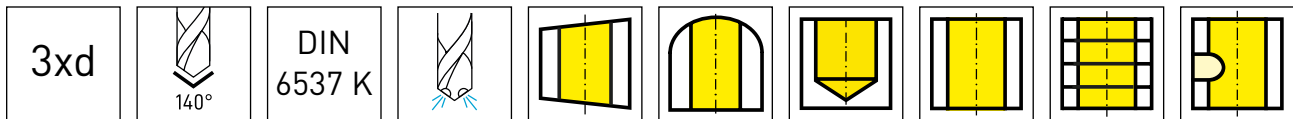
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.03.01.06000	6	6	66	28	20	HA	▲
DDM.03.01.06100	6.1	8	79	34	24	HA	△
DDM.03.01.06200	6.2	8	79	34	24	HA	△
DDM.03.01.06300	6.3	8	79	34	24	HA	△
DDM.03.01.06400	6.4	8	79	34	24	HA	△
DDM.03.01.06500	6.5	8	79	34	24	HA	▲
DDM.03.01.06600	6.6	8	79	34	24	HA	△
DDM.03.01.06700	6.7	8	79	34	24	HA	△
DDM.03.01.06800	6.8	8	79	34	24	HA	▲
DDM.03.01.06900	6.9	8	79	34	24	HA	△
DDM.03.01.07000	7	8	79	34	24	HA	▲
DDM.03.01.07100	7.1	8	79	41	29	HA	△
DDM.03.01.07200	7.2	8	79	41	29	HA	△
DDM.03.01.07300	7.3	8	79	41	29	HA	△
DDM.03.01.07400	7.4	8	79	41	29	HA	△
DDM.03.01.07500	7.5	8	79	41	29	HA	▲
DDM.03.01.07600	7.6	8	79	41	29	HA	△
DDM.03.01.07700	7.7	8	79	41	29	HA	△
DDM.03.01.07800	7.8	8	79	41	29	HA	▲
DDM.03.01.07900	7.9	8	79	41	29	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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M	•
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Grades

▲ In stock

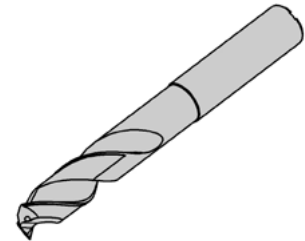
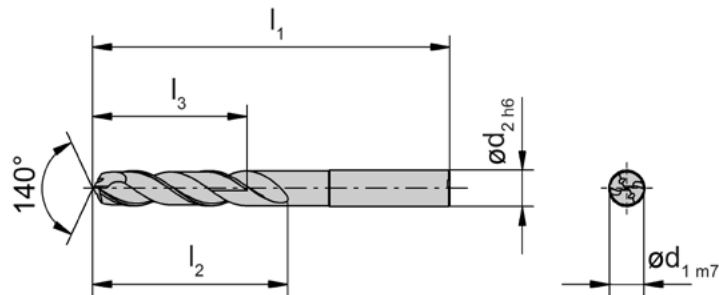
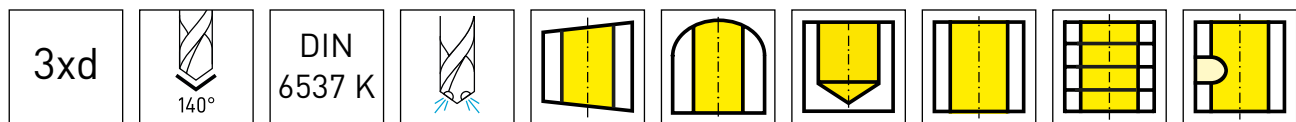
Δ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.03.01.08000	8	8	79	41	29	HA	▲
DDM.03.01.08100	8.1	10	89	47	35	HA	Δ
DDM.03.01.08200	8.2	10	89	47	35	HA	Δ
DDM.03.01.08300	8.3	10	89	47	35	HA	Δ
DDM.03.01.08400	8.4	10	89	47	35	HA	Δ
DDM.03.01.08500	8.5	10	89	47	35	HA	▲
DDM.03.01.08600	8.6	10	89	47	35	HA	Δ
DDM.03.01.08700	8.7	10	89	47	35	HA	Δ
DDM.03.01.08800	8.8	10	89	47	35	HA	Δ
DDM.03.01.08900	8.9	10	89	47	35	HA	Δ
DDM.03.01.09000	9	10	89	47	35	HA	▲
DDM.03.01.09100	9.1	10	89	47	35	HA	Δ
DDM.03.01.09200	9.2	10	89	47	35	HA	Δ
DDM.03.01.09250	9.25	10	89	47	35	HA	Δ
DDM.03.01.09300	9.3	10	89	47	35	HA	Δ
DDM.03.01.09400	9.4	10	89	47	35	HA	Δ
DDM.03.01.09500	9.5	10	89	47	35	HA	▲
DDM.03.01.09600	9.6	10	89	47	35	HA	Δ
DDM.03.01.09700	9.7	10	89	47	35	HA	Δ
DDM.03.01.09800	9.8	10	89	47	35	HA	Δ
DDM.03.01.09900	9.9	10	89	47	35	HA	Δ

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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M	•
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Grades

▲ In stock

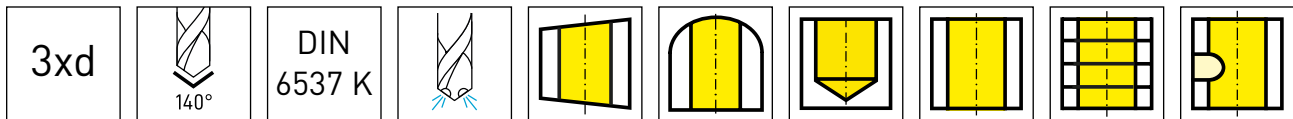
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.03.01.10000	10	10	89	47	35	HA	▲
DDM.03.01.10100	10.1	12	102	55	40	HA	△
DDM.03.01.10200	10.2	12	102	55	40	HA	△
DDM.03.01.10300	10.3	12	102	55	40	HA	△
DDM.03.01.10400	10.4	12	102	55	40	HA	△
DDM.03.01.10500	10.5	12	102	55	40	HA	▲
DDM.03.01.10600	10.6	12	102	55	40	HA	△
DDM.03.01.10700	10.7	12	102	55	40	HA	△
DDM.03.01.10800	10.8	12	102	55	40	HA	△
DDM.03.01.10900	10.9	12	102	55	40	HA	△
DDM.03.01.11000	11	12	102	55	40	HA	▲
DDM.03.01.11100	11.1	12	102	55	40	HA	△
DDM.03.01.11200	11.2	12	102	55	40	HA	▲
DDM.03.01.11300	11.3	12	102	55	40	HA	△
DDM.03.01.11400	11.4	12	102	55	40	HA	△
DDM.03.01.11500	11.5	12	102	55	40	HA	▲
DDM.03.01.11600	11.6	12	102	55	40	HA	△
DDM.03.01.11700	11.7	12	102	55	40	HA	△
DDM.03.01.11800	11.8	12	102	55	40	HA	△
DDM.03.01.11900	11.9	12	102	55	40	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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Grades

▲ In stock

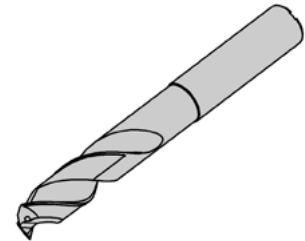
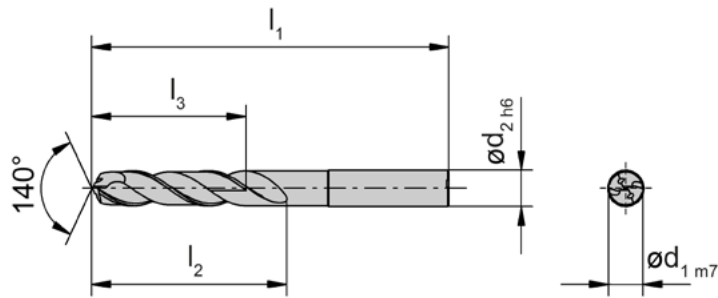
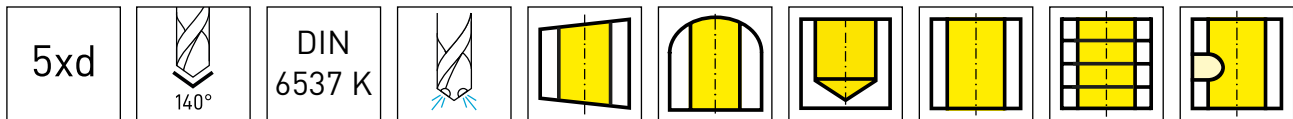
△ 2 weeks

Part number	d_1	d_2	l_1	l_2	l_3	Form	BM35
DDM.03.01.12000	12	12	102	55	40	HA	▲
DDM.03.01.12500	12.5	14	107	60	43	HA	△
DDM.03.01.12800	12.8	14	107	60	43	HA	△
DDM.03.01.13000	13	14	107	60	43	HA	▲
DDM.03.01.13500	13.5	14	107	60	43	HA	△
DDM.03.01.13800	13.8	14	107	60	43	HA	△
DDM.03.01.14000	14	14	107	60	43	HA	▲
DDM.03.01.14500	14.5	16	115	65	45	HA	△
DDM.03.01.14800	14.8	16	115	65	45	HA	△
DDM.03.01.15000	15	16	115	65	45	HA	△
DDM.03.01.15500	15.5	16	115	65	45	HA	△
DDM.03.01.15800	15.8	16	115	65	45	HA	△
DDM.03.01.16000	16	16	115	65	45	HA	△
DDM.03.01.16500	16.5	18	123	73	51	HA	△
DDM.03.01.16800	16.8	18	123	73	51	HA	△
DDM.03.01.17000	17	18	123	73	51	HA	△
DDM.03.01.17500	17.5	18	123	73	51	HA	△
DDM.03.01.17800	17.8	18	123	73	51	HA	△
DDM.03.01.18000	18	18	123	73	51	HA	△
DDM.03.01.18500	18.5	20	131	79	55	HA	△
DDM.03.01.18800	18.8	20	131	79	55	HA	△
DDM.03.01.19000	19	20	131	79	55	HA	△
DDM.03.01.19500	19.5	20	131	79	55	HA	△
DDM.03.01.19800	19.8	20	131	79	55	HA	△
DDM.03.01.20000	20	20	131	79	55	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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Grades

▲ In stock

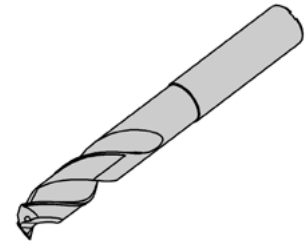
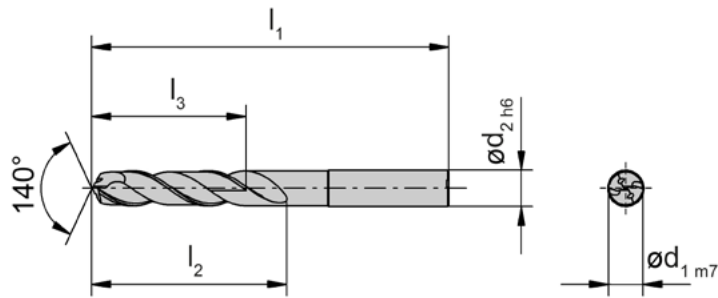
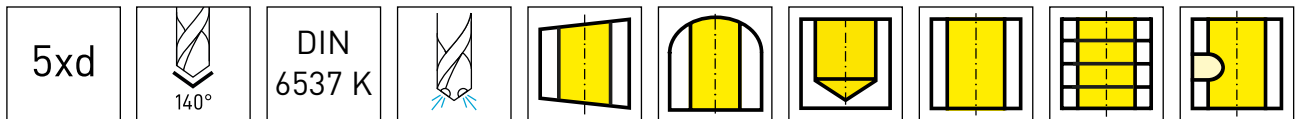
Δ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.05.01.03000	3	6	66	28	23	HA	▲
DDM.05.01.03100	3.1	6	66	28	23	HA	Δ
DDM.05.01.03200	3.2	6	66	28	23	HA	Δ
DDM.05.01.03300	3.3	6	66	28	23	HA	▲
DDM.05.01.03400	3.4	6	66	28	23	HA	Δ
DDM.05.01.03500	3.5	6	66	28	23	HA	Δ
DDM.05.01.03600	3.6	6	66	28	23	HA	Δ
DDM.05.01.03700	3.7	6	66	28	23	HA	Δ
DDM.05.01.03800	3.8	6	74	36	29	HA	Δ
DDM.05.01.03900	3.9	6	74	36	29	HA	Δ

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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Grades

▲ In stock

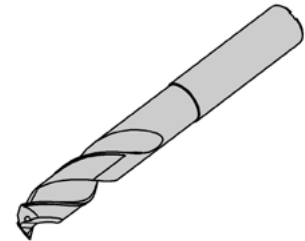
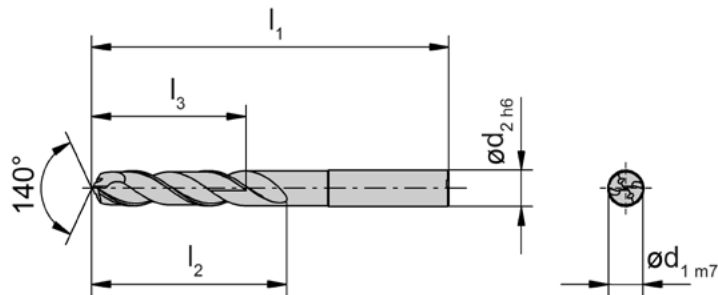
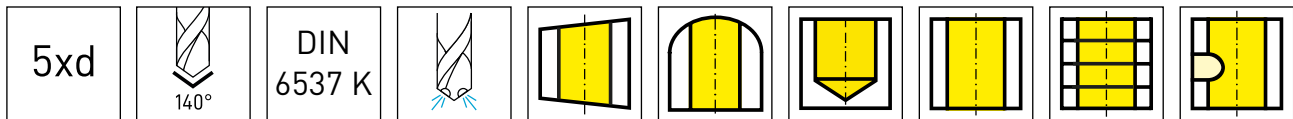
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.05.01.04000	4	6	74	36	29	HA	▲
DDM.05.01.04100	4.1	6	74	36	29	HA	△
DDM.05.01.04200	4.2	6	74	36	29	HA	▲
DDM.05.01.04300	4.3	6	74	36	29	HA	▲
DDM.05.01.04400	4.4	6	74	36	29	HA	△
DDM.05.01.04500	4.5	6	74	36	29	HA	▲
DDM.05.01.04600	4.6	6	74	36	29	HA	▲
DDM.05.01.04700	4.7	6	74	36	29	HA	▲
DDM.05.01.04800	4.8	6	82	44	35	HA	▲
DDM.05.01.04900	4.9	6	82	44	35	HA	△
DDM.05.01.05000	5	6	82	44	35	HA	▲
DDM.05.01.05100	5.1	6	82	44	35	HA	▲
DDM.05.01.05200	5.2	6	82	44	35	HA	▲
DDM.05.01.05300	5.3	6	82	44	35	HA	△
DDM.05.01.05400	5.4	6	82	44	35	HA	△
DDM.05.01.05500	5.5	6	82	44	35	HA	▲
DDM.05.01.05600	5.6	6	82	44	35	HA	△
DDM.05.01.05700	5.7	6	82	44	35	HA	△
DDM.05.01.05800	5.8	6	82	44	35	HA	▲
DDM.05.01.05900	5.9	6	82	44	35	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

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Grades

▲ In stock

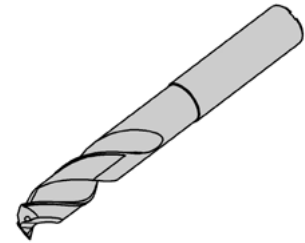
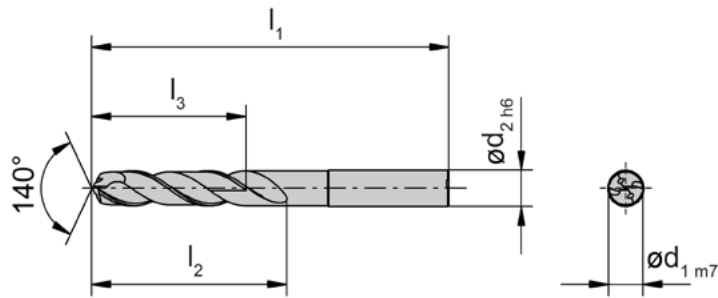
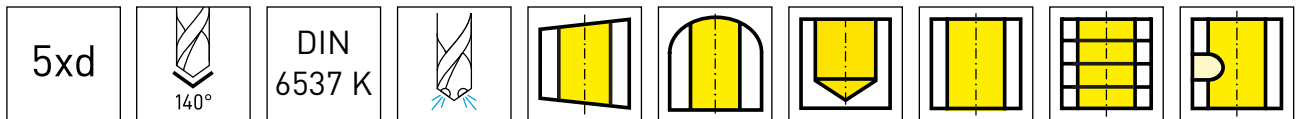
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.05.01.06000	6	6	82	44	35	HA	▲
DDM.05.01.06100	6.1	8	91	53	43	HA	△
DDM.05.01.06200	6.2	8	91	53	43	HA	▲
DDM.05.01.06300	6.3	8	91	53	43	HA	△
DDM.05.01.06400	6.4	8	91	53	43	HA	△
DDM.05.01.06500	6.5	8	91	53	43	HA	▲
DDM.05.01.06600	6.6	8	91	53	43	HA	▲
DDM.05.01.06700	6.7	8	91	53	43	HA	△
DDM.05.01.06800	6.8	8	91	53	43	HA	▲
DDM.05.01.06900	6.9	8	91	53	43	HA	▲
DDM.05.01.07000	7	8	91	53	43	HA	▲
DDM.05.01.07100	7.1	8	91	53	43	HA	△
DDM.05.01.07200	7.2	8	91	53	43	HA	△
DDM.05.01.07300	7.3	8	91	53	43	HA	△
DDM.05.01.07400	7.4	8	91	53	43	HA	▲
DDM.05.01.07500	7.5	8	91	53	43	HA	▲
DDM.05.01.07600	7.6	8	91	53	43	HA	△
DDM.05.01.07700	7.7	8	91	53	43	HA	△
DDM.05.01.07800	7.8	8	91	53	43	HA	▲
DDM.05.01.07900	7.9	8	91	53	43	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	o
M	•
K	-
N	•
S	•
H	-



Grades

▲ In stock

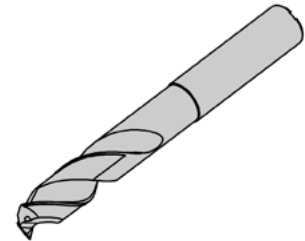
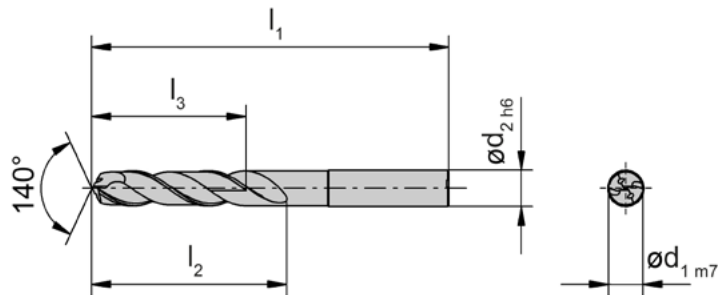
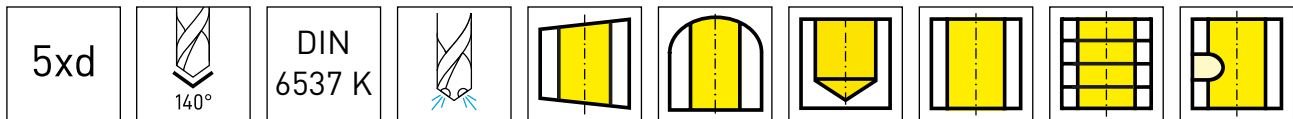
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.05.01.08000	8	8	91	53	43	HA	▲
DDM.05.01.08100	8.1	10	103	61	49	HA	△
DDM.05.01.08200	8.2	10	103	61	49	HA	▲
DDM.05.01.08300	8.3	10	103	61	49	HA	△
DDM.05.01.08400	8.4	10	103	61	49	HA	△
DDM.05.01.08500	8.5	10	103	61	49	HA	▲
DDM.05.01.08600	8.6	10	103	61	49	HA	△
DDM.05.01.08700	8.7	10	103	61	49	HA	△
DDM.05.01.08800	8.8	10	103	61	49	HA	▲
DDM.05.01.08900	8.9	10	103	61	49	HA	△
DDM.05.01.09000	9	10	103	61	49	HA	▲
DDM.05.01.09100	9.1	10	103	61	49	HA	△
DDM.05.01.09200	9.2	10	103	61	49	HA	△
DDM.05.01.09300	9.3	10	103	61	49	HA	▲
DDM.05.01.09400	9.4	10	103	61	49	HA	△
DDM.05.01.09500	9.5	10	103	61	49	HA	▲
DDM.05.01.09600	9.6	10	103	61	49	HA	△
DDM.05.01.09700	9.7	10	103	61	49	HA	△
DDM.05.01.09800	9.8	10	103	61	49	HA	▲
DDM.05.01.09900	9.9	10	103	61	49	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	o
M	•
K	-
N	•
S	•
H	-



Grades

▲ In stock

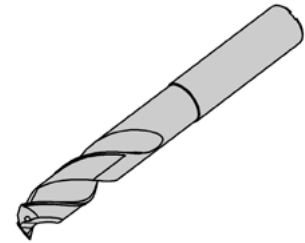
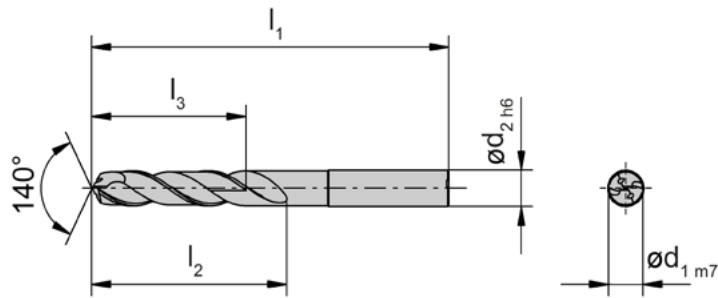
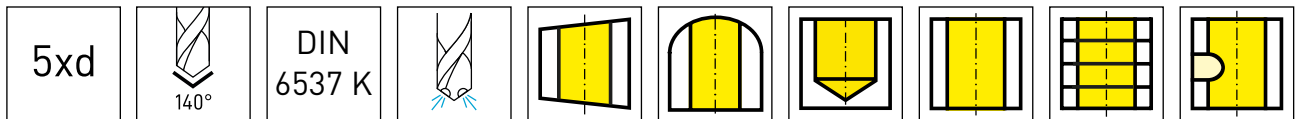
△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.05.01.10000	10	10	103	61	49	HA	▲
DDM.05.01.10100	10.1	12	118	71	56	HA	△
DDM.05.01.10200	10.2	12	118	71	56	HA	▲
DDM.05.01.10300	10.3	12	118	71	56	HA	△
DDM.05.01.10400	10.4	12	118	71	56	HA	△
DDM.05.01.10500	10.5	12	118	71	56	HA	▲
DDM.05.01.10600	10.6	12	118	71	56	HA	△
DDM.05.01.10700	10.7	12	118	71	56	HA	△
DDM.05.01.10800	10.8	12	118	71	56	HA	△
DDM.05.01.10900	10.9	12	118	71	56	HA	△
DDM.05.01.11000	11	12	118	71	56	HA	▲
DDM.05.01.11100	11.1	12	118	71	56	HA	△
DDM.05.01.11200	11.2	12	118	71	56	HA	△
DDM.05.01.11300	11.3	12	118	71	56	HA	△
DDM.05.01.11400	11.4	12	118	71	56	HA	△
DDM.05.01.11500	11.5	12	118	71	56	HA	▲
DDM.05.01.11600	11.6	12	118	71	56	HA	△
DDM.05.01.11700	11.7	12	118	71	56	HA	△
DDM.05.01.11800	11.8	12	118	71	56	HA	△
DDM.05.01.11900	11.9	12	118	71	56	HA	△
DDM.05.01.12000	12	12	118	71	56	HA	▲
DDM.05.01.12500	12.5	14	124	77	60	HA	▲
DDM.05.01.12800	12.8	14	124	77	60	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	o
M	•
K	-
N	•
S	•
H	-



Grades

▲ In stock

△ 2 weeks

Part number	d ₁	d ₂	l ₁	l ₂	l ₃	Form	BM35
DDM.05.01.13000	13	14	124	77	60	HA	▲
DDM.05.01.13500	13.5	14	124	77	60	HA	▲
DDM.05.01.13800	13.8	14	124	77	60	HA	△
DDM.05.01.14000	14	14	124	77	60	HA	▲
DDM.05.01.14500	14.5	16	133	83	63	HA	△
DDM.05.01.14800	14.8	16	133	83	63	HA	△
DDM.05.01.15000	15	16	133	83	63	HA	△
DDM.05.01.15500	15.5	16	133	83	63	HA	△
DDM.05.01.15800	15.8	16	133	83	63	HA	△
DDM.05.01.16000	16	16	133	83	63	HA	△
DDM.05.01.16500	16.5	18	143	93	71	HA	△
DDM.05.01.16800	16.8	18	143	93	71	HA	△
DDM.05.01.17000	17	18	143	93	71	HA	△
DDM.05.01.17500	17.5	18	143	93	71	HA	△
DDM.05.01.17800	17.8	18	143	93	71	HA	△
DDM.05.01.18000	18	18	143	93	71	HA	△
DDM.05.01.18500	18.5	20	153	101	77	HA	△
DDM.05.01.18800	18.8	20	153	101	77	HA	△
DDM.05.01.19000	19	20	153	101	77	HA	△
DDM.05.01.19500	19.5	20	153	101	77	HA	△
DDM.05.01.19800	19.8	20	153	101	77	HA	△
DDM.05.01.20000	20	20	153	101	77	HA	△

Optionally available in shank form DIN 6535-HE / Whistle Notch

Dimensions in mm

P	o
M	•
K	-
N	•
S	•
H	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----

D 1 1 2 2 . 0 5 . A 0 8 5 0 C N E S 3 5

1	D = Drilling
2	Generation
3	Version 1 1 = Twist drill point angle < 180°, up to 12xD 2 = Twist drill point angle = 180° 3 = Step drill 4 = Micro drill 5 = Deep hole drill (> 12xD) 6 = Counter bore 7 = Drill reamer
4	Version 2 1 = Cylindrical, z=2, straight chip space 2 = Cylindrical, z=2, helical flutes 3 = Cylindrical, z=3, helical flutes 4 = Cylindrical, z=4, helical flutes
5	Field of application 1 = Universal 2 = Specialized for ISO P & K 3 = Specialized for ISO M & S 4 = Specialized for ISO N 5 = Specialized for ISO S 6 = Specialized for Titanium 7 = Specialized for ISO K 8 = Specialized for ISO H
6	Separator

7-8	Drilling depth 03 ≈ 3 x DC (DIN 6537 short) 05 ≈ 5 x DC (DIN 6537 long) 08 ≈ 8 x DC 12 ≈ 12 x DC ...
9	Separator
10	Shank form DIN 6535 A = Cylindrical shank E = Whistle-notch shank
11-14	Cutting diameter [mm] x 0.01 Thread size for drills with chamfer
15	Internal coolant C = With internal coolant No code = no internal coolant
16	Code for regrinding (optional)
17	Space
18-21	Carbide grade

B

Material			Material group	Brinell Hardness (HB)	Tensile Strength R _m [N/mm ²]	
P	Carbon steel	~ 0,2 % C	P1.1	125	430	
		~ 0,4% C annealed	P1.2	190	610	
		~ 0,4% C quenched	P1.3	210	640	
		~ 0,6% C annealed	P1.4	190	610	
		~ 0,6% C quenched	P1.5	300	1000	
		free cutting steel	P1.6	220	750	
	Alloyed steel (<5%)	annealed	P2.1	180	590	
		quenched	P2.2	280	960	
		quenched	P2.3	350	1250	
		quenched	P2.4	430	1450	
	High alloyed steel (>5%)	annealed	P3.1	200	680	
		hardened	P3.2	350	1200	
	Cast steel	unalloyed	P4.1	180	590	
		alloyed	P4.2	220	750	
	Sintered steel	soft	P5.1	220	570	
K	Grey cast iron	low tensile strength	K1.1	180	250	
		high tensile strength	K1.2	250	350	
	Spheroidal graphite cast iron	ferritic	K2.1	160	400	
		pearlitic	K2.1	260	700	
	Malleable cast iron	ferritic	K3.1	200	400	
		pearlitic	K3.2	260	700	
	Ausferritic spheroidal cast iron / ADI	quenched	K4.1	260	800	
		quenched	K4.2	350	1050	
		quenched	K4.3	450	1400	

TABLE FORMAT

	Cutting speed vc (m/min) / Start values	Feed rate (mm/rev)						
		Ø4	Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
	330 - 395 100 - 120	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	295 - 360 90 - 110	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	230 - 295 70 - 90	.003 0.09	.005 0.14	.007 0.18	.008 0.22	.010 0.26	.011 0.3	.013 0.35
	260 - 330 80 - 100	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	195 - 260 60 - 80	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	295 - 360 90 - 110	.003 0.09	.005 0.14	.007 0.18	.008 0.22	.010 0.26	.011 0.3	.013 0.35
	260 - 330 80 - 100	.003 0.08	.004 0.12	.006 0.16	.007 0.2	.009 0.24	.011 0.28	.011 0.3
	215 - 280 65 - 85	.003 0.08	.004 0.12	.006 0.16	.007 0.2	.009 0.24	.011 0.28	.011 0.3
	130 - 195 40 - 60	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	130 - 195 40 - 60	.003 0.08	.004 0.12	.006 0.16	.007 0.2	.009 0.24	.011 0.28	.011 0.3
	230 - 330 70 - 100	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	230 - 330 70 - 100	.003 0.08	.004 0.12	.006 0.16	.007 0.2	.009 0.24	.011 0.28	.011 0.3
	130 - 195 40 - 60	.003 0.1	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.014 0.36	.015 0.4
	295 - 360 90 - 110	.003 0.09	.005 0.14	.007 0.18	.008 0.22	.010 0.26	.011 0.3	.013 0.35
	260 - 330 80 - 100	.003 0.09	.005 0.14	.007 0.18	.008 0.22	.010 0.26	.011 0.3	.013 0.35
	295 - 395 90 - 120	.006 0.16	.008 0.22	.011 0.28	.013 0.34	.014 0.38	.017 0.44	.019 0.5
	260 - 330 80 - 100	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.013 0.35	.015 0.4	.017 0.45
	295 - 395 90 - 120	.005 0.15	.007 0.2	.009 0.25	.011 0.3	.013 0.35	.015 0.4	.017 0.45
	230 - 295 70 - 90	.005 0.14	.007 0.18	.008 0.22	.009 0.25	.011 0.3	.013 0.35	.015 0.4
	260 - 330 80 - 100	.006 0.16	.008 0.22	.011 0.28	.013 0.34	.014 0.38	.017 0.44	.019 0.5
	195 - 260 60 - 80	.005 0.14	.007 0.18	.008 0.22	.009 0.25	.011 0.3	.013 0.35	.015 0.4
	195 - 260 60 - 80	.005 0.14	.007 0.18	.008 0.22	.009 0.25	.011 0.3	.013 0.35	.015 0.4
	165 - 195 50 - 60	.003 0.08	.004 0.12	.006 0.16	.007 0.2	.009 0.24	.011 0.28	.011 0.3
	65 - 100 20 - 30	.003 0.08	.004 0.12	.006 0.16	.007 0.2	.009 0.24	.011 0.28	.011 0.3

TABLE FORMAT

655
200

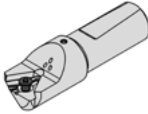
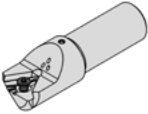
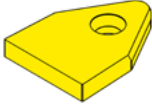
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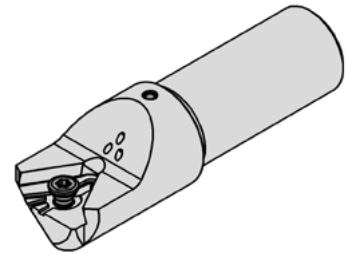
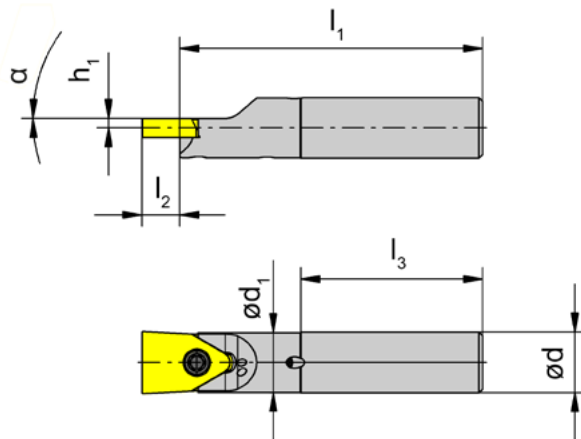
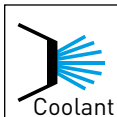
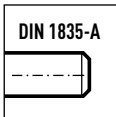
Suggested cutting data (inch)
Suggested cutting data (metric)



FORM DRILLING

SYSTEM 117

HOLDERS	Round Shank  Page 129 B117 Round Shank Page 130 B117 Whistle-notch
INSERTS	Form Blanks  Page 131 D117 16-26mm width



C

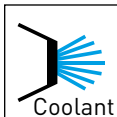
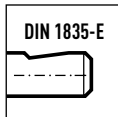
Part number	d	l ₁	l ₂	d ₁	α	h ₁	l ₃	Insert
B117.DD.16.3.A.16	16	80	10	15.8	0°	2.5	48	D117.0016.02.5.00
B117.DD.16.4.A.20	16	87	13	19.8	0°	2.5	47	D117.0020.02.5.00
B117.DD.20.5.A.26	20	95	14	25.8	0°	2.5	49	D117.0026.02.5.00
B117.DD.25.6.A.26	25	100	14	24.8	0°	2.5	56	D117.0026.02.5.00

Cylindrical/round shank

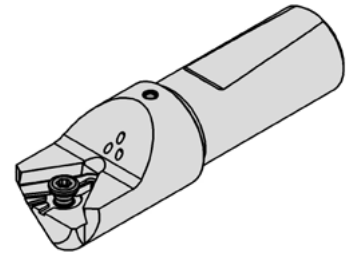
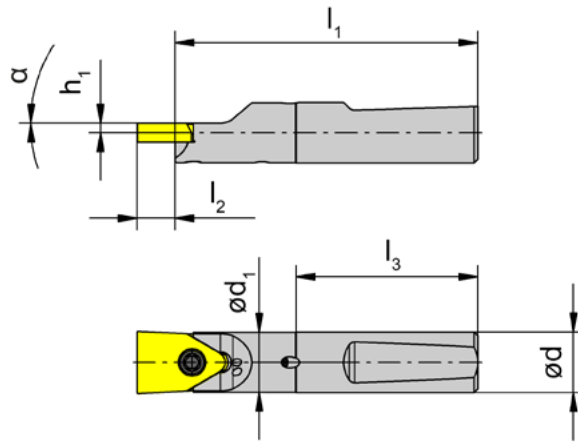
Dimensions in mm

Spare Parts

Boring Shank	Clamping Screw	TORX PLUS® Wrench	Torque Value
B117.DD.16.3.A.16	5.10T20P	T20PQ	5.5 Nm
B117.DD...	6.17T20P	T20PQ	7 Nm



C



Part number	d	l ₁	l ₂	d ₁	α	h ₁	l ₃	Insert
B117.DD.16.3.E.16	16	80	10	15.8	0°	2.5	48	D117.0016.02.5.00
B117.DD.16.4.E.20	16	87	13	19.8	0°	2.5	47	D117.0020.02.5.00
B117.DD.20.5.E.26	20	95	14	25.8	0°	2.5	49	D117.0026.02.5.00
B117.DD.25.6.E.26	25	100	14	24.8	0°	2.5	56	D117.0026.02.5.00

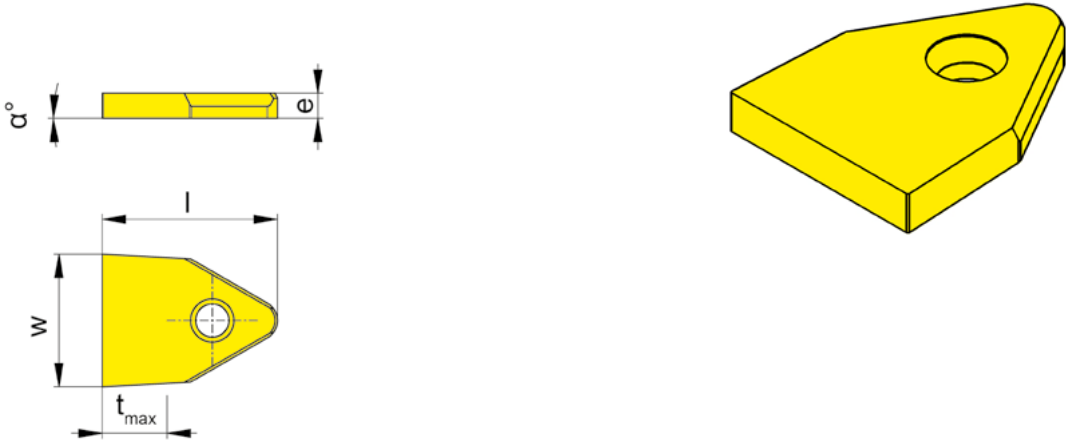
Whistle-notch shank

Dimensions in mm

Spare Parts

Boring Shank	Clamping Screw	TORX PLUS® Wrench	Torque Value
B117.DD.16.3.E.16	5.10T20P	T20PQ	5.5 Nm
B117.DD...	6.17T20P	T20PQ	7 Nm

z2



C

Grades

▲ In stock

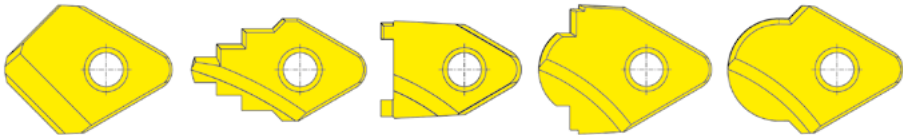
Δ 2 weeks

Part number	w	E	t _{max}	l	α	Boring Shank	MG12
D117.0016.02.5.00	16	5	5	24	0°	B117.DD...16	▲
D117.0020.02.5.00	20	5	8	32	0°	B117.DD...20	▲
D117.0026.02.5.00	26	5	9	35	0°	B117.DD...26	▲
							P o
							M o
							K o
							N •
							S -
							H -

For special forms, the carbide grade is specifically selected for each application and is available for ISO material groups P, M, K and N.

Dimensions in mm

Special forms are available upon request



D



REAMING

SYSTEM DR

DR small

High-performance reaming has entered new dimensions with the world's smallest exchangeable insert reaming system.



DR size	Ds _{min}	Ds _{max}
DR08	7.60	8.10
DR10	8.10	9.60
DR11	9.60	11.10
DR13	11.10	13.10

Dimensions in mm

DR medium

Reaming newly innovated and defined by a unique design, engineered for high productivity. This high-precision exchangeable insert reaming system is the guarantee for best process reliability.



DR size	Ds _{min}	Ds _{max}
016	11.90	15.60
019	15.60	18.60
024	18.60	23.60
029	23.60	28.60
036	28.60	35.60
044	35.60	43.60
052	43.60	51.60
061	51.60	60.60
081	60.60	80.60
101	80.60	100.60
121	100.60	120.60
141	120.60	140.60

Dimensions in mm

DR large

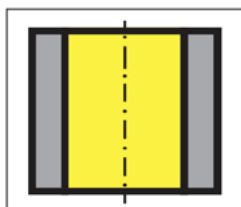
Powerful reaming for large diameters. The innovative, flexible reaming system that combines all the advantages of URMA's exchangeable reaming head technologies.



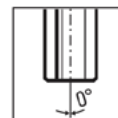
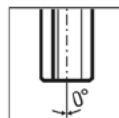
DR size	Ds _{min}	Ds _{max}
150	139.80	149.80
160	149.80	159.80
170	159.80	169.80
180	169.80	179.80
190	179.80	189.80
200	189.80	200.20

Dimensions in mm

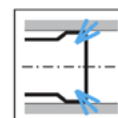
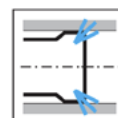
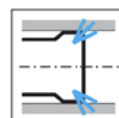
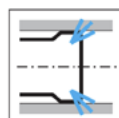
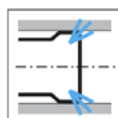
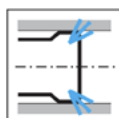
Through hole



Flute angle



Coolant



Geometry

B1

B7

A1

B7

A6

A7
DRS

Grade

HL3H

HL3H

HL3H

DT2H

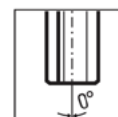
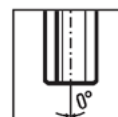
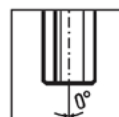
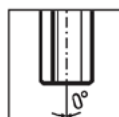
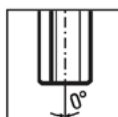
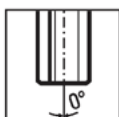
AD3H

HL3H

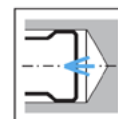
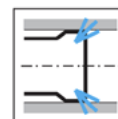
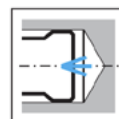
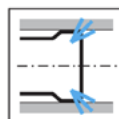
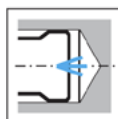
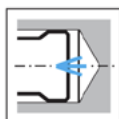
Blind hole



Flute angle



Coolant



Geometry

A1

A7

A1

A7

A6

A7

Grade

HL3H

HL3H

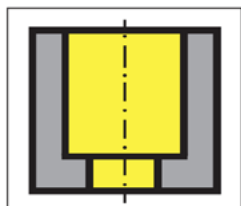
HL3H

DT2H

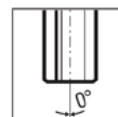
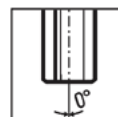
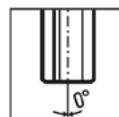
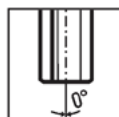
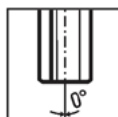
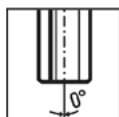
AD3H

HL3H

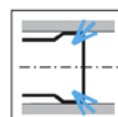
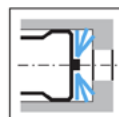
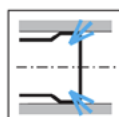
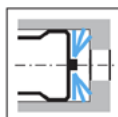
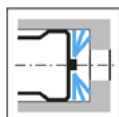
Step hole



Flute angle



Coolant



Geometry

A1

A7

A1

A7

A6

A7

Grade

HL3H

HL3H

HL3H

DT2H

AD3H

HL3H

for rotating applications

for lathe applications

Hydraulic Expansion Toolholder

Floating Toolholder

HDR

Runout adjustable hydraulic expansion toolholder

PZ

Floating holder

ER

Collet

Seal

Chucking nut

HDZB

Intermediate sleeves

MDR small

Reaming insert holder

DR small

Insert

Screw

Example with ISO tolerances

DR.13.12000.H7.A1 HL3H

DR

DR small system designation

13

Insert seat size

12.000

Nominal diameter in mm

H7

ISO tolerance

A1

Cutting geometry

HL3H

Carbide grade

Fixed Cutting Diameter Example (Q Insert)

DR.13.12005.Q3.A1 HL3H

DR

DR small system designation

13

Insert seat size

12.005

Cutting diameter in mm

Q

Fixed-diameter insert code

3

Manufacturing tolerance +/- μm

A1

Cutting geometry

HL3H

Carbide grade

D

Explanation of Cutting Diameter

For orders specified by bore tolerance, the cutting diameter is defined according to the HORN standard. Depending on the nominal diameter and tolerance class, the cutting diameter is positioned approximately within the upper third of the specified tolerance zone.

Example - Standard Insert Designation

DR.13.12000.H7.A1 HL3H

Insert ground to $\varnothing 12.014 \pm 0.003 \text{ mm}$

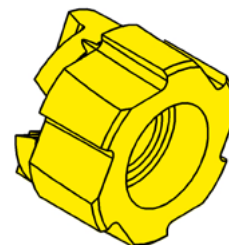
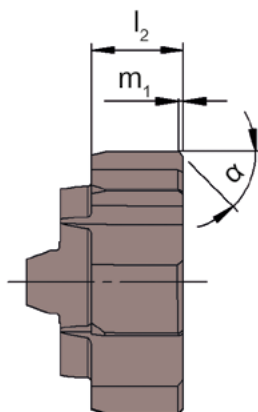
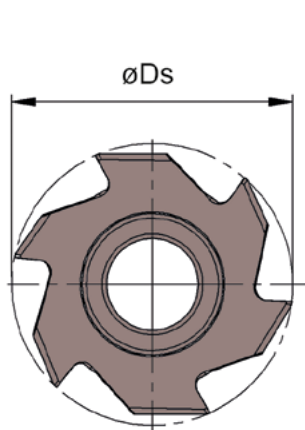
If a specific cutting diameter is required, a Q insert must be selected. Unlike standard inserts, which are specified by the nominal bore diameter and tolerance class, Q inserts (fixed-diameter inserts) are specified by the required cutting diameter.

Q inserts are intended for special machining conditions where the defined standard tolerance ranges are not applicable.

Example - Standard Insert Designation

DR.13.12005.Q3.A1 HL3H

Insert ground to $\varnothing 12.005 \pm 0.003 \text{ mm}$



Grades

Picture = right hand cutting version

▲ In stock

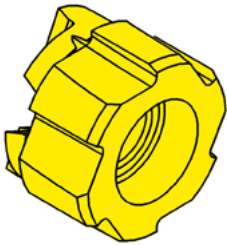
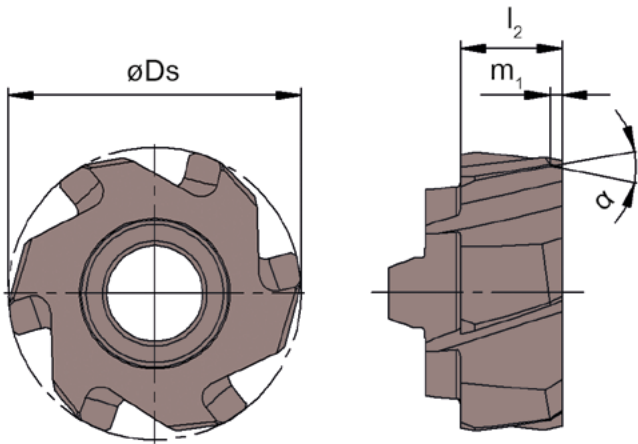
Δ 2 weeks

Part number	Ds	Tolerance	Size	m_1	α	l_2	Z	HL3H
DR.08.08000.H7.A1	8	H7	08	.25	45	4.5	4	Δ
DR.10.09000.H7.A1	9	H7	10	.25	45	4.5	6	Δ
DR.11.10000.H7.A1	10	H7	11	.25	45	4.5	6	Δ
DR.11.11000.H7.A1	11	H7	11	.25	45	4.5	6	Δ
DR.13.12000.H7.A1	12	H7	13	.25	45	4.5	6	Δ
DR.13.13000.H7.A1	13	H7	13	.25	45	4.5	6	Δ

Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

Dimensions in mm

P	●
M	o
K	●
N	o
S	-
H	-

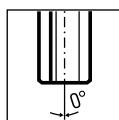


Picture = right hand cutting version

▲ In stock Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	HL3H	
DR.08.08000.H7.B1	8	H7	08	.54	25°	4.5	4	Δ	•
DR.10.09000.H7.B1	9	H7	10	.54	25°	4.5	6	Δ	o
DR.11.10000.H7.B1	10	H7	11	.54	25°	4.5	6	Δ	•
DR.11.11000.H7.B1	11	H7	11	.54	25°	4.5	6	Δ	o
DR.13.12000.H7.B1	12	H7	13	.54	25°	4.5	6	Δ	-
DR.13.13000.H7.B1	13	H7	13	.54	25°	4.5	6	Δ	-
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview									P M K N S H
Dimensions in mm									• o • o - -

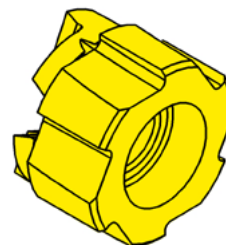
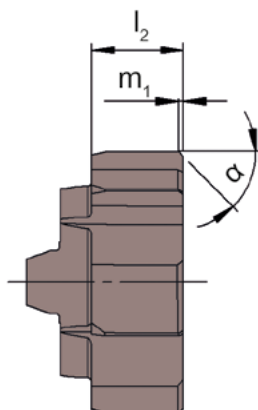
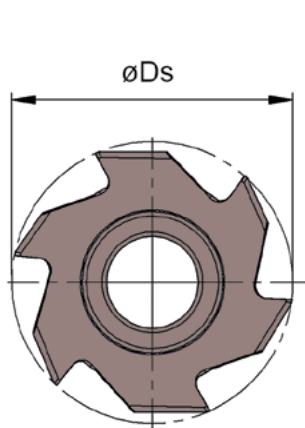
D



z4

M

z6



Grades

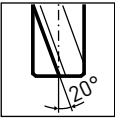
Picture = right hand cutting version

▲ In stock

Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z		DT2H	HL3H	
DR.08.08000.H7.A7	8	H7	08	.25	45	4.5	4		Δ	Δ	
DR.10.09000.H7.A7	9	H7	10	.25	45	4.5	6		Δ	Δ	
DR.11.10000.H7.A7	10	H7	11	.25	45	4.5	6		Δ	Δ	
DR.11.11000.H7.A7	11	H7	11	.25	45	4.5	6		Δ	Δ	
DR.13.12000.H7.A7	12	H7	13	.25	45	4.5	6		Δ	Δ	
DR.13.13000.H7.A7	13	H7	13	.25	45	4.5	6		Δ	Δ	
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview									P	-	●
									M	-	○
									K	-	●
									N	●	○
									S	-	-
Dimensions in mm									H	-	-

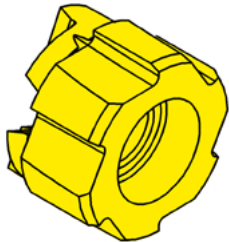
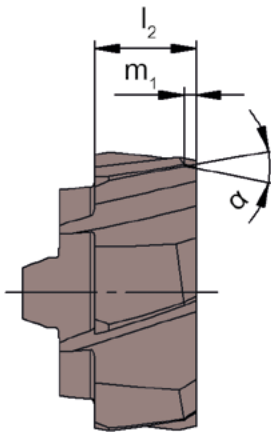
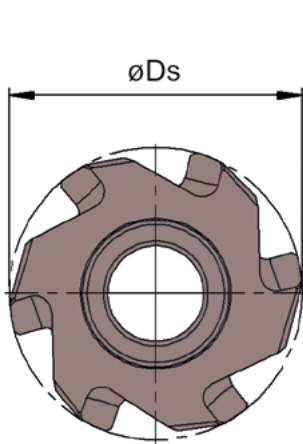
Dimensions in mm



z4

M

z6



D

Picture = right hand cutting version

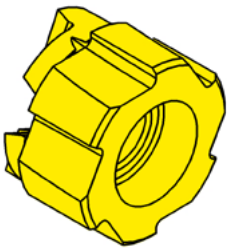
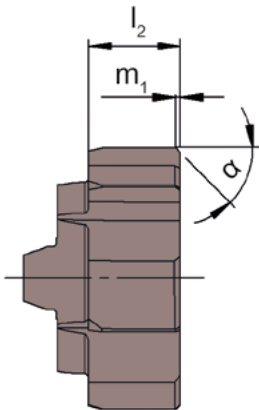
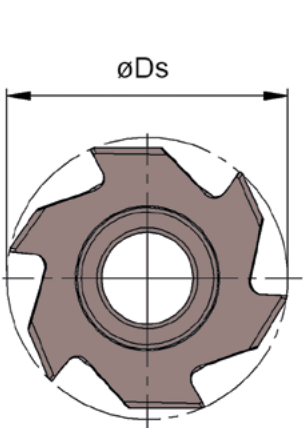
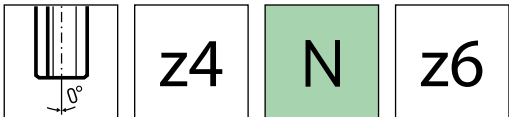
Grades

▲ In stock

Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z		DT2H	HL3H
DR.08.08000.H7.B7	8	H7	08	.54	25°	4.5	4		Δ	Δ
DR.10.09000.H7.B7	9	H7	10	.54	25°	4.5	6		Δ	Δ
DR.11.10000.H7.B7	10	H7	11	.54	25°	4.5	6		Δ	Δ
DR.11.11000.H7.B7	11	H7	11	.54	25°	4.5	6		Δ	Δ
DR.13.12000.H7.B7	12	H7	13	.54	25°	4.5	6		Δ	Δ
DR.13.13000.H7.B7	13	H7	13	.54	25°	4.5	6		Δ	Δ
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview									P	- ●
									M	- o
									K	- ●
									N	● o
									S	- -
									H	- -

Dimensions in mm



D

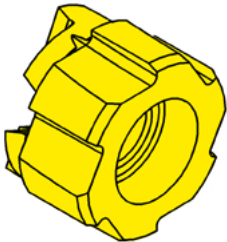
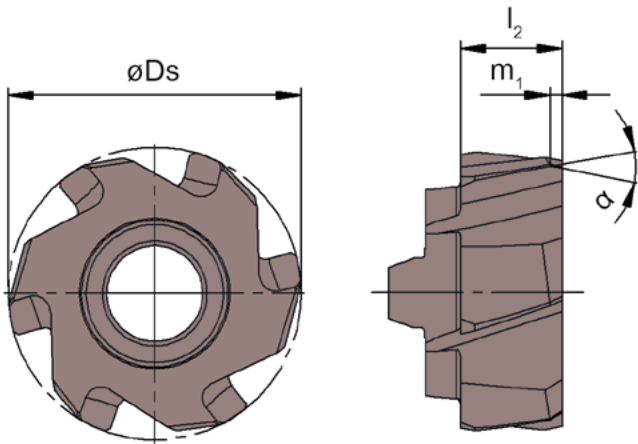
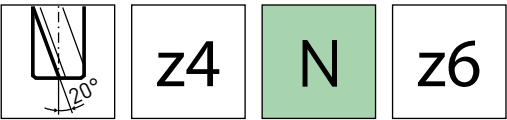
Picture = right hand cutting version

Grades

▲ In stock Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z		DT2H	HL3H
DR.08.08000.H7.A7	8	H7	08	.25	45	4.5	4		Δ	Δ
DR.10.09000.H7.A7	9	H7	10	.25	45	4.5	6		Δ	Δ
DR.11.10000.H7.A7	10	H7	11	.25	45	4.5	6		Δ	Δ
DR.11.11000.H7.A7	11	H7	11	.25	45	4.5	6		Δ	Δ
DR.13.12000.H7.A7	12	H7	13	.25	45	4.5	6		Δ	Δ
DR.13.13000.H7.A7	13	H7	13	.25	45	4.5	6		Δ	Δ
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview									P	- ●
									M	- ○
									K	- ●
									N	● ○
									S	- -
									H	- -

Dimensions in mm

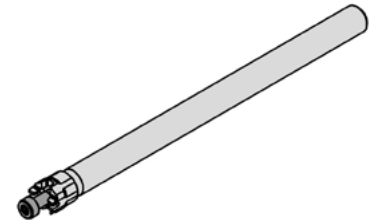
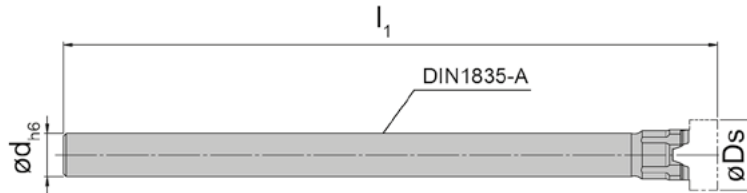
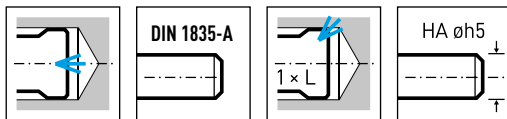


Picture = right hand cutting version

Grades
▲ In stock Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z		DT2H	HL3H
DR.08.08000.H7.B7	8	H7	08	.54	25°	4.5	4		Δ	Δ
DR.10.09000.H7.B7	9	H7	10	.54	25°	4.5	6		Δ	Δ
DR.11.10000.H7.B7	10	H7	11	.54	25°	4.5	6		Δ	Δ
DR.11.11000.H7.B7	11	H7	11	.54	25°	4.5	6		Δ	Δ
DR.13.12000.H7.B7	12	H7	13	.54	25°	4.5	6		Δ	Δ
DR.13.13000.H7.B7	13	H7	13	.54	25°	4.5	6		Δ	Δ
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview									P	- ●
									M	- ○
									K	- ●
									N	● ○
									S	- -
									H	- -

Dimensions in mm



Innere Kühlmittelzufuhr
internal coolant

S = Sackloch, zentral
= Blind hole, central

L = Sackloch, lateral
= Blind hole, lateral

Part number	$D_{s_{min}}$	$D_{s_{max}}$	l_1	d	Coolant	Size
MDR.08.ST06.086.A.S	7.6	8.1	86	6	L	08
MDR.08.HM06.102.A.S	7.6	8.1	102	6	L	08
MDR.10.ST06.096.A.S	8.101	9.6	96	6	L	10
MDR.10.HM06.116.A.S	8.101	9.6	116	6	L	10
MDR.11.ST08.106.A.S	9.601	11.1	106	8	S	11
MDR.11.HM08.126.A.S	9.601	11.1	126	8	S	11
MDR.13.ST08.120.A.S	11.101	13.1	120	8	S	13
MDR.13.HM08.150.A.S	11.101	13.1	150	8	S	13

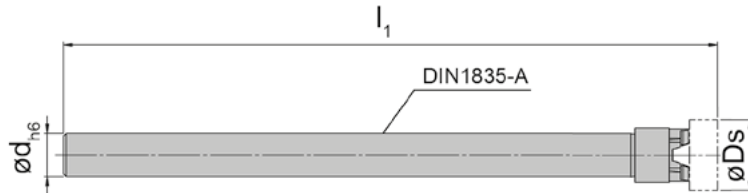
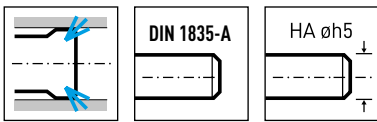
Material of shank: HM = Carbide ST = Steel

1 Set of screws, 1 Torx wrench - no separate order required!

Dimensions in mm

Spare Parts

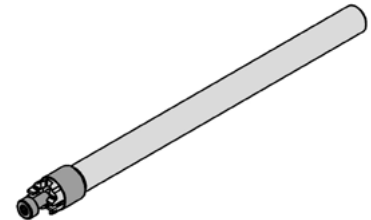
Reaming insert holder	Screw
MDR.08...	C009051
MDR.10...	C009052
MDR.11...	C009053B
MDR.13...	C009054B



Innere Kühlmittelzufuhr
internal coolant



D = Durchgangsbohrung
= through hole



D

Part number	Ds _{min}	Ds _{max}	l ₁	d	Coolant	Size
MDR.08.ST06.086.A.D	7.6	8.1	86	6	D	08
MDR.08.HM06.102.A.D	7.6	8.1	102	6	D	08
MDR.10.ST06.096.A.D	8.101	9.6	96	6	D	10
MDR.10.HM06.116.A.D	8.101	9.6	116	6	D	10
MDR.11.ST08.106.A.D	9.601	11.1	106	8	D	11
MDR.11.HM08.126.A.D	9.601	11.1	126	8	D	11
MDR.13.ST08.120.A.D	11.101	13.1	120	8	D	13
MDR.13.HM08.150.A.D	11.101	13.1	150	8	D	13

Material of shank: HM = Carbide ST = Steel

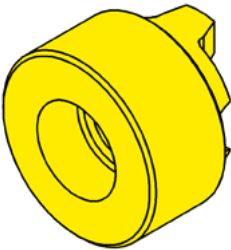
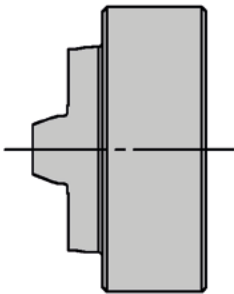
1 Set of screws, 1 Torx wrench - no separate order required!

Dimensions in mm

Spare Parts

Reaming insert holder	Screw
MDR.08...	C009051
MDR.10...	C009052
MDR.11...	C009053B
MDR.13...	C009054B

D



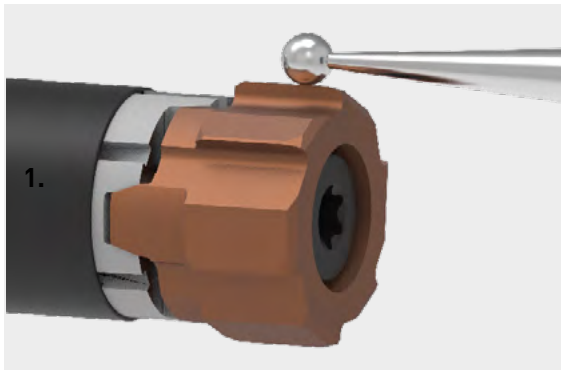
Part number	Size
DR.08.ROCD	08
DR.10.ROCD	10
DR.11.ROCD	11
DR.13.ROCD	13

Dimensions in mm

Runout Adjustment

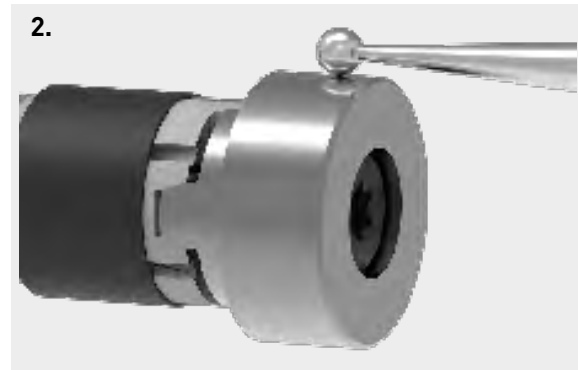
For optimum reaming results, precise tool runout is essential. To compensate for runout errors caused by the toolholder or machine spindle, an alignment or floating holder can be used.

The runout of HORN DR small reamers can be checked and adjusted using several methods:



1. Using the cylindrical land

HORN DR small reamers are manufactured to very tight tolerances. Runout can therefore be measured accurately on the cylindrical land of the insert.

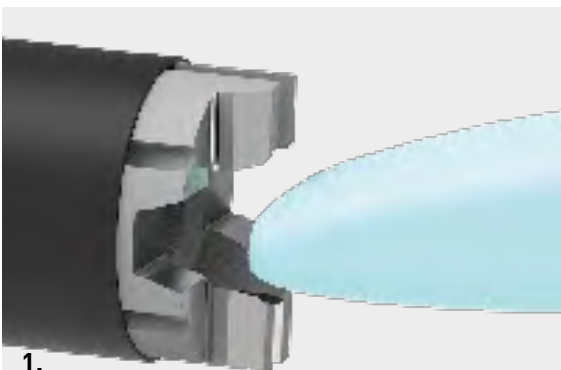


2. Using the runout adjustment ring

With the runout adjustment ring, tool runout can be checked and corrected even more easily.

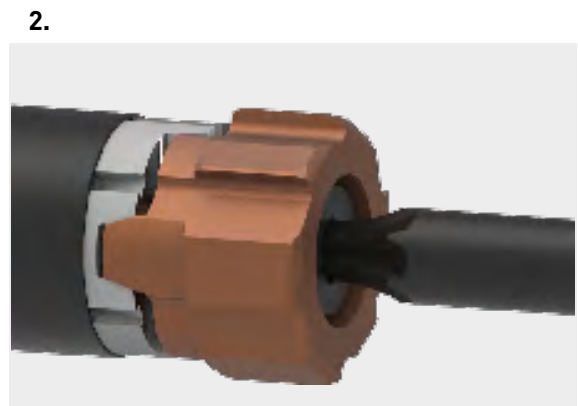
Insert Change

For optimum performance, the interface must be cleaned thoroughly and the specified tightening torque must be observed when changing the insert.



1. Cleaning of the interface

The interface can be cleaned most effectively using the cleaning compound included with the insert packaging.



2. Insert change

Place the reaming insert onto the previously cleaned interface and tighten it to the specified torque.

Cylindrical shanks from Ø 11.90 - 35.60 mm

For rotating use

For use on

See Hydraulic Expansion Toolholder chapter

See Floating Holder chapter

D

HDR

run out
adjustable hydraulic
expansion toolholder

HDZB

Intermediate sleeves

PZ

Floating holder

ER

Collet

Seal

Chucking nut

MDR

Reaming insert holder
with standard interface

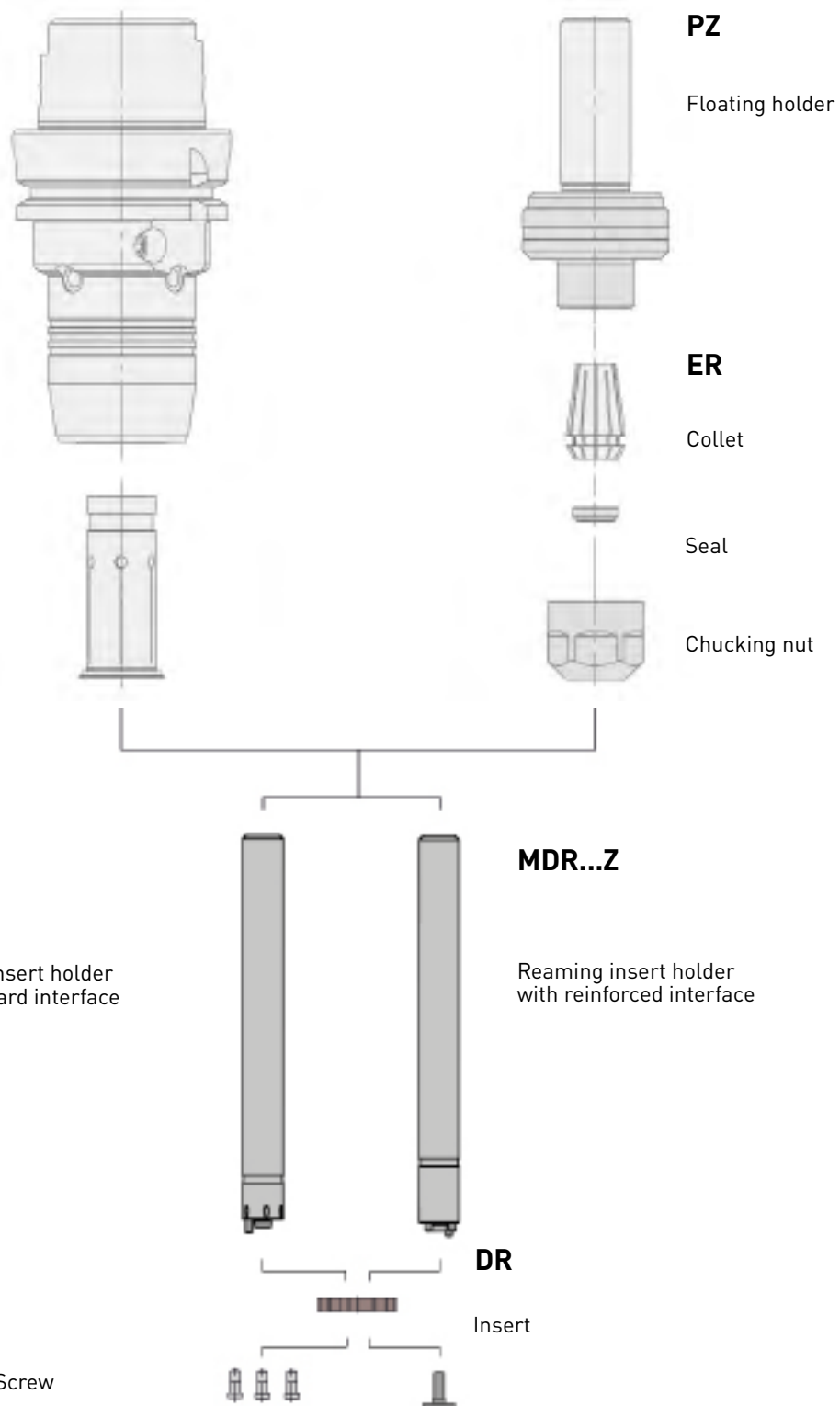
MDR...Z

Reaming insert holder
with reinforced interface

DR

Insert

Clamping Screw



Fixed Cutting Diameter Example (Q Insert)

DR.13.12005.Q3.A1 HL3H

DR

DR small system designation

16

Insert seat size

12.00

Cutting diameter in mm

H7

Tolerance

A1

Cutting geometry

HL3H

Carbide grade

D

Explanation of Cutting Diameter

For orders specified by bore tolerance, the cutting diameter is defined according to the HORN standard. Depending on the nominal diameter and tolerance class, the cutting diameter is positioned approximately within the upper third of the specified tolerance zone.

Example - Standard Insert Designation

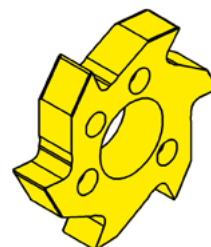
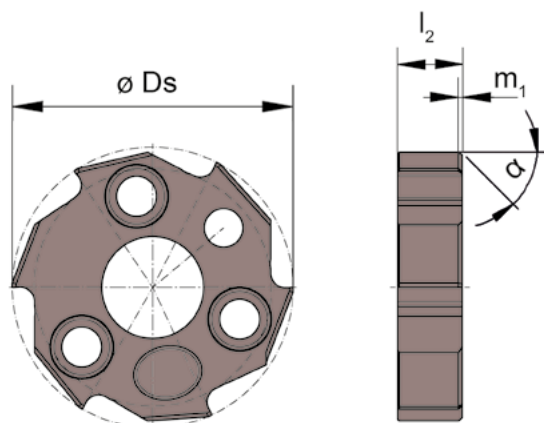
DR.16.1200.H7.A1 HL3H

Insert ground to $\varnothing 12.014 \pm 0.003$ mm

If a specific cutting diameter is required, a Q insert must be selected. Unlike standard inserts, which are specified by the nominal bore diameter and tolerance class, Q inserts (fixed-diameter inserts) are specified by the required cutting diameter.

Q inserts are intended for special machining conditions where the defined standard tolerance ranges are not applicable.

A "DRS" drawing must be created for Q cutting edges. The corresponding standard designation number cannot be used here. A DRS reaming insert with a corresponding drawing must also be selected for nominal diameters with 3 decimal places or tolerances which do not comply with the ISO code.



Grades

Picture = right hand cutting version

▲ In stock

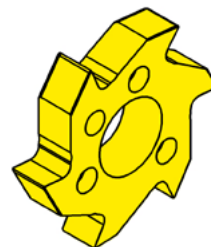
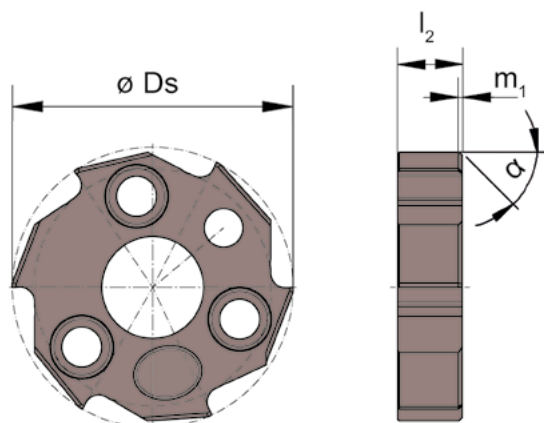
△ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	HL3H
DR.016.01200.H7.A1	12	H7	16	.25	45°	4.3	6	Δ
DR.016.01300.H7.A1	13	H7	16	.25	45°	4.3	6	Δ
DR.016.01400.H7.A1	14	H7	16	.25	45°	4.3	6	Δ
DR.016.01500.H7.A1	15	H7	16	.25	45°	4.3	6	Δ
DR.019.01600.H7.A1	16	H7	19	.25	45°	4.3	6	Δ
DR.019.01700.H7.A1	17	H7	19	.25	45°	4.3	6	Δ
DR.019.01800.H7.A1	18	H7	19	.25	45°	4.3	6	Δ
DR.024.01900.H7.A1	19	H7	24	.25	45°	4.3	6	Δ
DR.024.02000.H7.A1	20	H7	24	.25	45°	4.3	6	Δ
DR.024.02100.H7.A1	21	H7	24	.25	45°	4.3	6	Δ
DR.024.02200.H7.A1	22	H7	24	.25	45°	4.3	6	Δ
DR.024.02300.H7.A1	23	H7	24	.25	45°	4.3	6	Δ
DR.029.02400.H7.A1	24	H7	29	.3	45°	4.3	8	Δ
DR.029.02500.H7.A1	25	H7	29	.3	45°	4.3	8	Δ
DR.029.02600.H7.A1	26	H7	29	.3	45°	4.3	8	Δ
DR.029.02700.H7.A1	27	H7	29	.3	45°	4.3	8	Δ
DR.029.02800.H7.A1	28	H7	29	.3	45°	4.3	8	Δ
DR.036.02900.H7.A1	29	H7	36	.3	45°	4.3	8	Δ
DR.036.03000.H7.A1	30	H7	36	.3	45°	4.3	8	Δ
DR.036.03100.H7.A1	31	H7	36	.3	45°	4.3	8	Δ
DR.036.03200.H7.A1	32	H7	36	.3	45°	4.3	8	Δ
DR.036.03300.H7.A1	33	H7	36	.3	45°	4.3	8	Δ
DR.036.03400.H7.A1	34	H7	36	.3	45°	4.3	8	Δ
DR.036.03500.H7.A1	35	H7	36	.3	45°	4.3	8	Δ

Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

Dimensions in mm

P	●
M	○
K	●
N	○
S	-
H	-



D

Grades

Picture = right hand cutting version

▲ In stock

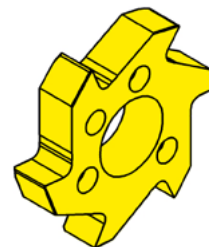
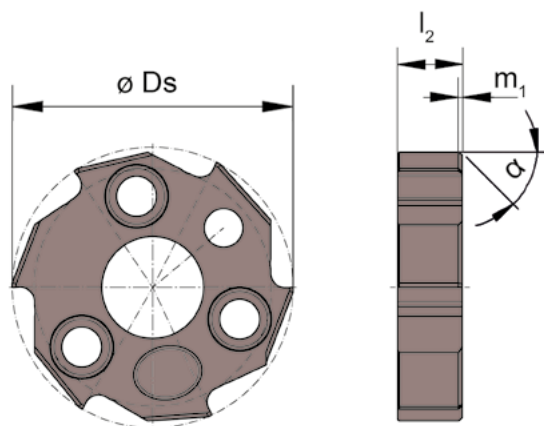
Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	HL3H
DR.016.01200.H7.B1	12	H7	16	.54	25°	4.3	6	Δ
DR.016.01300.H7.B1	13	H7	16	.54	25°	4.3	6	Δ
DR.016.01400.H7.B1	14	H7	16	.54	25°	4.3	6	Δ
DR.016.01500.H7.B1	15	H7	16	.54	25°	4.3	6	Δ
DR.019.01600.H7.B1	16	H7	19	.54	25°	4.3	6	Δ
DR.019.01700.H7.B1	17	H7	19	.54	25°	4.3	6	Δ
DR.019.01800.H7.B1	18	H7	19	.54	25°	4.3	6	Δ
DR.024.01900.H7.B1	19	H7	24	.54	25°	4.3	6	Δ
DR.024.02000.H7.B1	20	H7	24	.54	25°	4.3	6	Δ
DR.024.02100.H7.B1	21	H7	24	.54	25°	4.3	6	Δ
DR.024.02200.H7.B1	22	H7	24	.54	25°	4.3	6	Δ
DR.024.02300.H7.B1	23	H7	24	.54	25°	4.3	6	Δ
DR.029.02400.H7.B1	24	H7	29	.64	25°	4.3	8	Δ
DR.029.02500.H7.B1	25	H7	29	.64	25°	4.3	8	Δ
DR.029.02600.H7.B1	26	H7	29	.64	25°	4.3	8	Δ
DR.029.02700.H7.B1	27	H7	29	.64	25°	4.3	8	Δ
DR.029.02800.H7.B1	28	H7	29	.64	25°	4.3	8	Δ
DR.036.02900.H7.B1	29	H7	36	.64	25°	4.3	8	Δ
DR.036.03000.H7.B1	30	H7	36	.64	25°	4.3	8	Δ
DR.036.03100.H7.B1	31	H7	36	.64	25°	4.3	8	Δ
DR.036.03200.H7.B1	32	H7	36	.64	25°	4.3	8	Δ
DR.036.03300.H7.B1	33	H7	36	.64	25°	4.3	8	Δ
DR.036.03400.H7.B1	34	H7	36	.64	25°	4.3	8	Δ
DR.036.03500.H7.B1	35	H7	36	.64	25°	4.3	8	Δ

Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

Dimensions in mm

P	●
M	○
K	●
N	○
S	-
H	-



D

Grades

Picture = right hand cutting version

▲ In stock

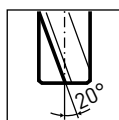
△ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	H20
DR.016.01200.H7.A6	12	H7	16	.25	45°	4.3	6	Δ
DR.016.01300.H7.A6	13	H7	16	.25	45°	4.3	6	Δ
DR.016.01400.H7.A6	14	H7	16	.25	45°	4.3	6	Δ
DR.016.01500.H7.A6	15	H7	16	.25	45°	4.3	6	Δ
DR.019.01600.H7.A6	16	H7	19	.25	45°	4.3	6	Δ
DR.019.01700.H7.A6	17	H7	19	.25	45°	4.3	6	Δ
DR.019.01800.H7.A6	18	H7	19	.25	45°	4.3	6	Δ
DR.024.01900.H7.A6	19	H7	24	.25	45°	4.3	6	Δ
DR.024.02000.H7.A6	20	H7	24	.25	45°	4.3	6	Δ
DR.024.02100.H7.A6	21	H7	24	.25	45°	4.3	6	Δ
DR.024.02200.H7.A6	22	H7	24	.25	45°	4.3	6	Δ
DR.024.02300.H7.A6	23	H7	24	.25	45°	4.3	6	Δ
DR.029.02500.H7.A6	25	H7	29	.3	45°	4.3	8	Δ
DR.029.02600.H7.A6	26	H7	29	.3	45°	4.3	8	Δ
DR.029.02700.H7.A6	27	H7	29	.3	45°	4.3	8	Δ
DR.029.02800.H7.A6	28	H7	29	.3	45°	4.3	8	Δ
DR.036.02900.H7.A6	29	H7	36	.3	45°	4.3	8	Δ
DR.036.03000.H7.A6	30	H7	36	.3	45°	4.3	8	Δ
DR.036.03100.H7.A6	31	H7	36	.3	45°	4.3	8	Δ
DR.036.03200.H7.A6	32	H7	36	.3	45°	4.3	8	Δ
DR.036.03400.H7.A6	34	H7	36	.3	45°	4.3	8	Δ
DR.036.03500.H7.A6	35	H7	36	.3	45°	4.3	8	Δ

For recommendations of cutting geometry and carbide grade please see technical instructions

Dimensions in mm

P	●
M	○
K	-
N	-
S	-
H	-



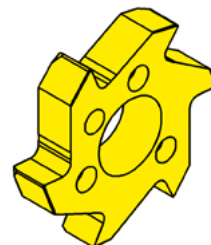
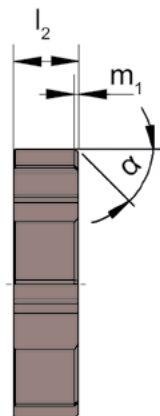
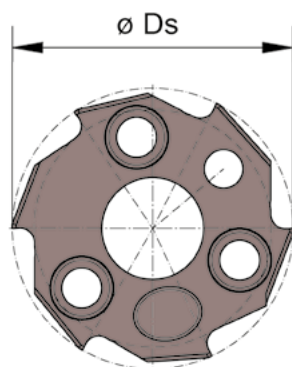
z6

Cermet



P

z8



D

Grades

Picture = right hand cutting version

▲ In stock

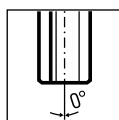
Δ 2 weeks

Part number	Ds	Tolerance	Size	m_1	α	l_2	Z	H20
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DR.016.01300.H7.B6	13	H7	16	.54	25°	4.3	6	Δ
DR.016.01400.H7.B6	14	H7	16	.54	25°	4.3	6	Δ
DR.016.01500.H7.B6	15	H7	16	.54	25°	4.3	6	Δ
DR.019.01600.H7.B6	16	H7	19	.54	25°	4.3	6	Δ
DR.019.01700.H7.B6	17	H7	19	.54	25°	4.3	6	Δ
DR.019.01800.H7.B6	18	H7	19	.54	25°	4.3	6	Δ
DR.024.01900.H7.B6	19	H7	24	.54	25°	4.3	6	Δ
DR.024.02000.H7.B6	20	H7	24	.54	25°	4.3	6	Δ
DR.024.02100.H7.B6	21	H7	24	.54	25°	4.3	6	Δ
DR.024.02200.H7.B6	22	H7	24	.54	25°	4.3	6	Δ
DR.024.02300.H7.B6	23	H7	24	.54	25°	4.3	6	Δ
DR.029.02400.H7.B6	24	H7	29	.64	25°	4.3	8	Δ
DR.029.02500.H7.B6	25	H7	29	.64	25°	4.3	8	Δ
DR.029.02600.H7.B6	26	H7	29	.64	25°	4.3	8	Δ
DR.029.02700.H7.B6	27	H7	29	.64	25°	4.3	8	Δ
DR.029.02800.H7.B6	28	H7	29	.64	25°	4.3	8	Δ
DR.036.02900.H7.B6	29	H7	36	.64	25°	4.3	8	Δ
DR.036.03000.H7.B6	30	H7	36	.64	25°	4.3	8	Δ
DR.036.03200.H7.B6	32	H7	36	.64	25°	4.3	8	Δ
DR.036.03400.H7.B6	34	H7	36	.64	25°	4.3	8	Δ
DR.036.03500.H7.B6	35	H7	36	.64	25°	4.3	8	Δ

For recommendations of cutting geometry and carbide grade please see technical instructions

Dimensions in mm

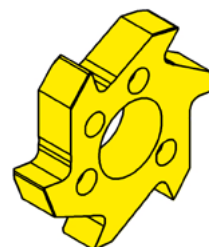
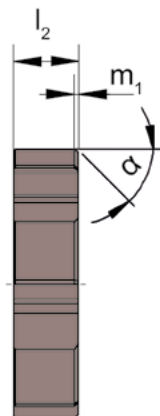
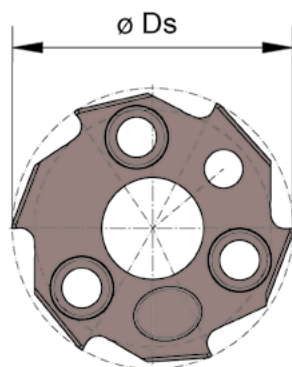
P	●
M	○
K	-
N	-
S	-
H	-



z6

N

z8



D

Grades

Picture = right hand cutting version

▲ In stock

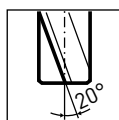
Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	DT2H
DR.016.01200.H7.A7	12	H7	16	.25	45°	4.3	6	Δ
DR.016.01300.H7.A7	13	H7	16	.25	45°	4.3	6	Δ
DR.016.01400.H7.A7	14	H7	16	.25	45°	4.3	6	Δ
DR.016.01500.H7.A7	15	H7	16	.25	45°	4.3	6	Δ
DR.019.01600.H7.A7	16	H7	19	.25	45°	4.3	6	Δ
DR.019.01700.H7.A7	17	H7	19	.25	45°	4.3	6	Δ
DR.019.01800.H7.A7	18	H7	19	.25	45°	4.3	6	Δ
DR.024.01900.H7.A7	19	H7	24	.25	45°	4.3	6	Δ
DR.024.02000.H7.A7	20	H7	24	.25	45°	4.3	6	Δ
DR.024.02100.H7.A7	21	H7	24	.25	45°	4.3	6	Δ
DR.024.02200.H7.A7	22	H7	24	.25	45°	4.3	6	Δ
DR.024.02300.H7.A7	23	H7	24	.25	45°	4.3	6	Δ
DR.029.02400.H7.A7	24	H7	29	.3	45°	4.3	8	Δ
DR.029.02500.H7.A7	25	H7	29	.3	45°	4.3	8	Δ
DR.029.02600.H7.A7	26	H7	29	.3	45°	4.3	8	Δ
DR.029.02700.H7.A7	27	H7	29	.3	45°	4.3	8	Δ
DR.029.02800.H7.A7	28	H7	29	.3	45°	4.3	8	Δ
DR.036.02900.H7.A7	29	H7	36	.3	45°	4.3	8	Δ
DR.036.03000.H7.A7	30	H7	36	.3	45°	4.3	8	Δ
DR.036.03100.H7.A7	31	H7	36	.3	45°	4.3	8	Δ
DR.036.03200.H7.A7	32	H7	36	.3	45°	4.3	8	Δ
DR.036.03400.H7.A7	34	H7	36	.3	45°	4.3	8	Δ
DR.036.03500.H7.A7	35	H7	36	.3	45°	4.3	8	Δ

Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

Dimensions in mm

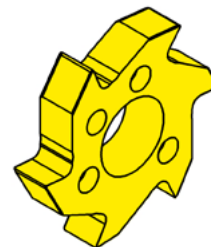
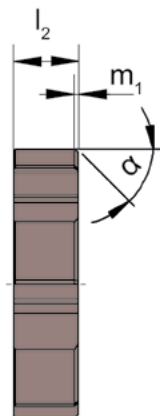
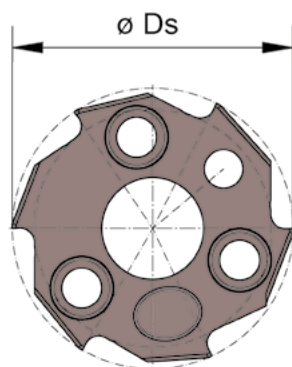
P	-
M	-
K	-
N	●
S	-
H	-



z6

N

z8



D

Grades

Picture = right hand cutting version

▲ In stock

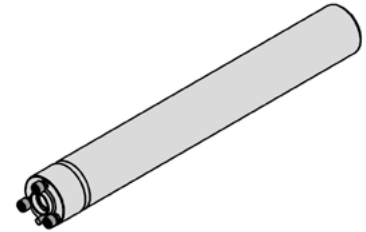
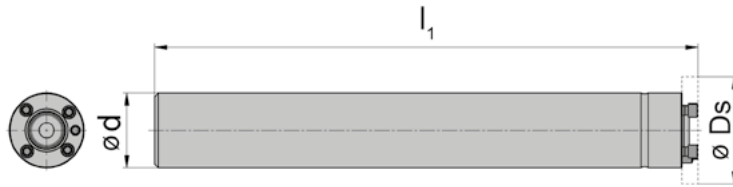
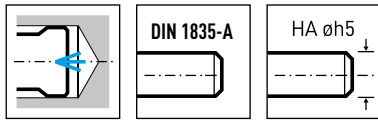
Δ 2 weeks

Part number	Ds	Tolerance	Size	m_1	α	l_2	Z	DT2H
DR.016.01200.H7.B7	12	H7	16	.54	25°	4.3	6	Δ
DR.016.01300.H7.B7	13	H7	16	.54	25°	4.3	6	Δ
DR.016.01400.H7.B7	14	H7	16	.54	25°	4.3	6	Δ
DR.016.01500.H7.B7	15	H7	16	.54	25°	4.3	6	Δ
DR.019.01600.H7.B7	16	H7	19	.54	25°	4.3	6	Δ
DR.019.01700.H7.B7	17	H7	19	.54	25°	4.3	6	Δ
DR.019.01800.H7.B7	18	H7	19	.54	25°	4.3	6	Δ
DR.024.01900.H7.B7	19	H7	24	.54	25°	4.3	6	Δ
DR.024.02000.H7.B7	20	H7	24	.54	25°	4.3	6	Δ
DR.024.02100.H7.B7	21	H7	24	.54	25°	4.3	6	Δ
DR.024.02200.H7.B7	22	H7	24	.54	25°	4.3	6	Δ
DR.024.02300.H7.B7	23	H7	24	.54	25°	4.3	6	Δ
DR.029.02400.H7.B7	24	H7	29	.64	25°	4.3	8	Δ
DR.029.02500.H7.B7	25	H7	29	.64	25°	4.3	8	Δ
DR.029.02600.H7.B7	26	H7	29	.64	25°	4.3	8	Δ
DR.029.02700.H7.B7	27	H7	29	.64	25°	4.3	8	Δ
DR.029.02800.H7.B7	28	H7	29	.64	25°	4.3	8	Δ
DR.036.02900.H7.B7	29	H7	36	.64	25°	4.3	8	Δ
DR.036.03000.H7.B7	30	H7	36	.64	25°	4.3	8	Δ
DR.036.03100.H7.B7	31	H7	36	.64	25°	4.3	8	Δ
DR.036.03200.H7.B7	32	H7	36	.64	25°	4.3	8	Δ
DR.036.03400.H7.B7	34	H7	36	.64	25°	4.3	8	Δ
DR.036.03500.H7.B7	35	H7	36	.64	25°	4.3	8	Δ

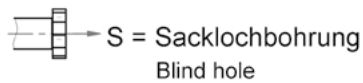
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

Dimensions in mm

P	-
M	-
K	-
N	●
S	-
H	-



Innere Kühlmittelzufuhr
Through coolant



Part number	Ds _{min}	Ds _{max}	l ₁	d	Coolant	Size
MDR.016.ST10.100.A.S	11.9	15.6	100	10	S	16
MDR.016.HM10.160.A.S	11.9	15.6	160	10	S	16
MDR.016.ST10.160.A.S	11.9	15.6	160	10	S	16
MDR.019.ST12.115.A.S	15.601	18.6	115	12	S	19
MDR.019.HM12.185.A.S	15.601	18.6	185	12	S	19
MDR.019.ST12.185.A.S	15.601	18.6	185	12	S	19
MDR.024.ST16.128.A.S	18.601	23.6	128	16	S	24
MDR.024.HM16.208.A.S	18.601	23.6	208	16	S	24
MDR.024.ST16.208.A.S	18.601	23.6	208	16	S	24
MDR.029.ST20.145.A.S	23.601	28.6	145	20	S	29
MDR.029.HM20.240.A.S	23.601	28.6	240	20	S	29
MDR.029.ST20.240.A.S	23.601	28.6	240	20	S	29
MDR.036.ST25.170.A.S	28.601	35.6	170	25	S	36
MDR.036.HM25.274.A.S	28.601	35.6	274	25	S	36
MDR.036.ST25.274.A.S	28.601	35.6	274	25	S	36

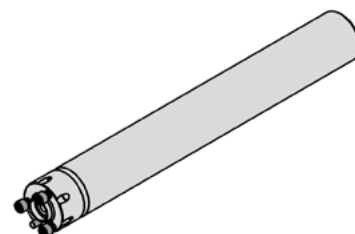
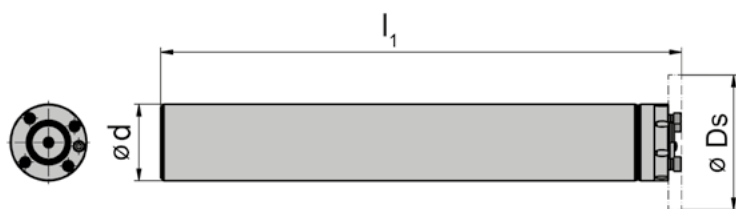
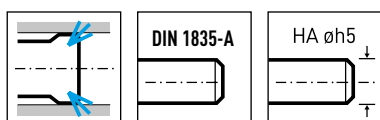
Material of shank: HM = Carbide ST = Steel

1 Set of screws, 1 Torx wrench - no separate order required!

Dimensions in mm

Spare Parts

Reaming insert holder	Screw
MDR.0...	C009000
MDR....	C009001



Innere Kühlmittelzufuhr
Through coolant



D = Durchgangsbohrung
Through hole

D

Part number	Ds _{min}	Ds _{max}	l ₁	d	Coolant	Size
MDR.016.ST10.100.A.D	11.9	15.6	100	10	d	16
MDR.016.HM10.160.A.D	11.9	15.6	160	10	d	16
MDR.016.ST10.160.A.D	11.9	15.6	160	10	d	16
MDR.019.ST12.115.A.D	15.601	18.6	115	12	d	19
MDR.019.HM12.185.A.D	15.601	18.6	185	12	d	19
MDR.019.ST12.185.A.D	15.601	18.6	185	12	d	19
MDR.024.ST16.128.A.D	18.601	23.6	128	16	d	24
MDR.024.HM16.208.A.D	18.601	23.6	208	16	d	24
MDR.024.ST16.208.A.D	18.601	23.6	208	16	d	24
MDR.029.ST20.145.A.D	23.601	28.6	145	20	d	29
MDR.029.HM20.240.A.D	23.601	28.6	240	20	d	29
MDR.029.ST20.240.A.D	23.601	28.6	240	20	d	29
MDR.036.ST25.170.A.D	28.601	35.6	170	25	d	36
MDR.036.HM25.274.A.D	28.601	35.6	274	25	d	36
MDR.036.ST25.274.A.D	28.601	35.6	274	25	d	36

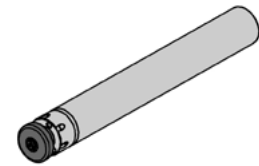
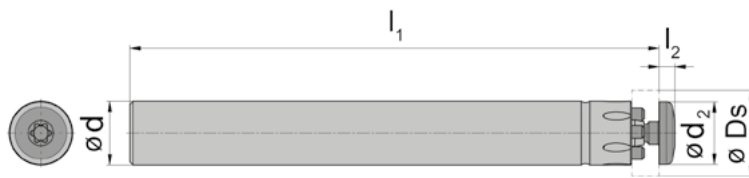
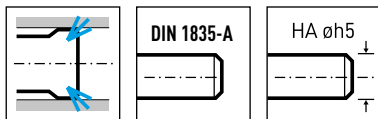
Material of shank: HM = Carbide ST = Steel

1 Set of screws, 1 Torx wrench - no separate order required!

Dimensions in mm

Spare Parts

Reaming insert holder	Screw
MDR.0...	C009000
MDR....	C009001



Innere Kühlmittelzufuhr
Through coolant



D = Durchgangsbohrung
Through hole

Part number	Ds_{min}	Ds_{max}	l_2	l_1	d	d_2	Coolant	Size
MDR.016.ST10.100.A.D.Z	11.9	15.6	2.5	100	10	9.8	D	16
MDR.016.HM10.160.A.D.Z	11.9	15.6	2.5	160	10	9.8	D	16
MDR.016.ST10.160.A.D.Z	11.9	15.6	2.5	160	10	9.8	D	16
MDR.019.ST12.115.A.D.Z	15.601	18.6	3	115	12	11.8	D	19
MDR.019.HM12.185.A.D.Z	15.601	18.6	3	185	12	11.8	D	19
MDR.019.ST12.185.A.D.Z	15.601	18.6	3	185	12	11.8	D	19
MDR.024.ST16.128.A.D.Z	18.601	23.6	4	128	16	15.8	D	24
MDR.024.HM16.208.A.D.Z	18.601	23.6	4	208	16	15.8	D	24
MDR.024.ST16.208.A.D.Z	18.601	23.6	4	208	16	15.8	D	24
MDR.029.ST20.145.A.D.Z	23.601	28.6	4	145	20	24.5	D	29
MDR.029.HM20.240.A.D.Z	23.601	28.6	4	240	20	24.5	D	29
MDR.029.ST20.240.A.D.Z	23.601	28.6	4	240	20	24.5	D	29
MDR.036.ST25.170.A.D.Z	28.601	35.6	4	170	25	24.5	D	36
MDR.036.HM25.274.A.D.Z	28.601	35.6	4	274	25	24.5	D	36
MDR.036.ST25.274.A.D.Z	28.601	35.6	4	274	25	24.5	D	36

with central clamping screw

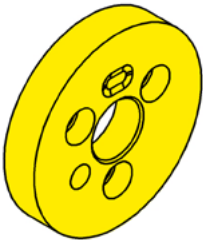
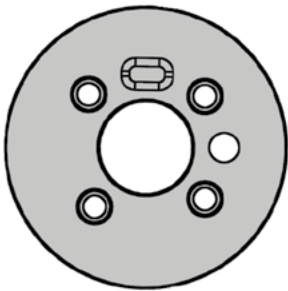
Material of shank: HM = Carbide ST = Steel

1 Set of screws, 1 Torx wrench - no separate order required!

Dimensions in mm

Spare Parts

Reaming insert holder	Screw	Torx Wrench
MDR.016...	C009022	T15Q
MDR.019...	C009023	T20Q
MDR.024...	C009024	T30Q
MDR.036	C009025	T30Q



Part number	Size
DR.016.ROCD	16
DR.019.ROCD	19
DR.024.ROCD	24
DR.029.ROCD	29
DR.036.ROCD	36

Dimensions in mm

Modular System for Ø 35.601 - 140.600 mm

Adaptor with Beta-Module

See URMA Adaptors Chapter

Balancing shank

VDR

VDR

cylindrical

direct

BD

BH

BT

B13

Extension
Beta-Modul

VDR

Balancing shank
Beta-Modul

MDR

Reaming insert holder

DR

Insert

Screws for insert

Screw for holder

D

Ordering Example with ISO-Tolerance

DR.044.03561.H7.A1 HL3H

DR

DR System

044

Insert Seat

35,61

Diameter in mm

H7

Tolerance

A1

Geometry

HL3H

Carbide Grade

D

Explanation of insert size order example

For orders with specifications of the bore tolerance, the diameter is defined by HORN standard. Depending on the size and tolerance, the finished diameter is approximately in the upper third of the tolerance range.

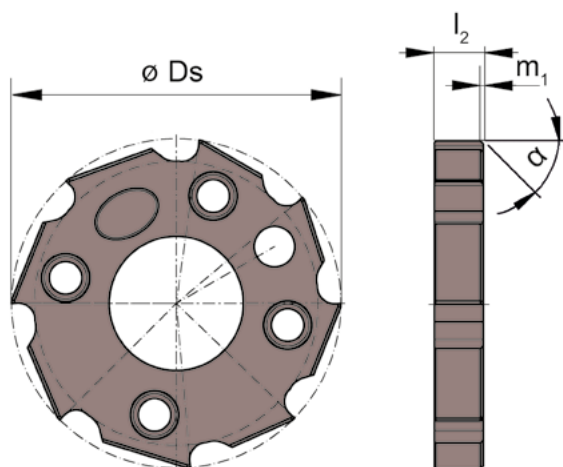
Examples standard insert designation:

DR.044.03561.H7.A1 HL3H

insert ground to $\varnothing 35,63 \pm 0.003$ mm

A Q-insert designation is selected for a specific insert dimension. In contrary to standard inserts where all tolerances refer to the bore tolerance, Q-inserts indicates the required insert diameter (target size). Q-inserts are recommended for special applications where standard tolerance ranges are not applicable.

A "DRS" drawing must be created for Q cutting edges. The corresponding standard designation number cannot be used here. A DRS reaming insert with a corresponding drawing must also be selected for nominal diameters with 3 decimal places or tolerances which do not comply with the ISO code.



Grades

Picture = right hand cutting version

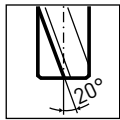
▲ In stock

△ 2 weeks

Part number	Ds	Tolerance	Size	m_1	α	l_2	Z	HL3H
DR.044.03600.H7.A1	36	H7	44	.35	45°	4.3	8	Δ
DR.044.03700.H7.A1	37	H7	44	.35	45°	4.3	8	Δ
DR.044.03800.H7.A1	38	H7	44	.35	45°	4.3	8	Δ
DR.044.03900.H7.A1	39	H7	44	.35	45°	4.3	8	Δ
DR.044.04000.H7.A1	40	H7	44	.35	45°	4.3	8	Δ
DR.044.04100.H7.A1	41	H7	44	.35	45°	4.3	8	Δ
DR.044.04200.H7.A1	42	H7	44	.35	45°	4.3	8	Δ
DR.044.04300.H7.A1	43	H7	44	.35	45°	4.3	8	Δ
DR.052.04400.H7.A1	44	H7	52	.35	45°	4.3	10	Δ
DR.052.04500.H7.A1	45	H7	52	.35	45°	4.3	10	Δ
DR.052.04600.H7.A1	46	H7	52	.35	45°	4.3	10	Δ
DR.052.04700.H7.A1	47	H7	52	.35	45°	4.3	10	Δ
DR.052.04800.H7.A1	48	H7	52	.35	45°	4.3	10	Δ
DR.052.04900.H7.A1	49	H7	52	.35	45°	4.3	10	Δ
DR.052.05000.H7.A1	50	H7	52	.35	45°	4.3	10	Δ
DR.061.05200.H7.A1	52	H7	61	.35	45°	4.3	10	Δ
DR.061.05500.H7.A1	55	H7	61	.35	45°	4.3	10	Δ
DR.061.06000.H7.A1	60	H7	61	.35	45°	4.3	10	Δ
DR.081.06500.H7.A1	65	H7	81	.4	45°	4.3	12	Δ
DR.081.06800.H7.A1	68	H7	81	.4	45°	4.3	12	Δ
DR.081.07000.H7.A1	70	H7	81	.4	45°	4.3	12	Δ
DR.081.07500.H7.A1	75	H7	81	.4	45°	4.3	12	Δ
DR.081.08000.H7.A1	80	H7	81	.4	45°	4.3	12	Δ
DR.101.08500.H7.A1	85	H7	101	.45	45°	4.3	12	Δ
DR.101.09000.H7.A1	90	H7	101	.45	45°	4.3	12	Δ
DR.101.09500.H7.A1	95	H7	101	.45	45°	4.3	12	Δ
DR.101.10000.H7.A1	100	H7	101	.45	45°	4.3	12	Δ
DR.121.11000.H7.A1	110	H7	121	.6	45°	5.3	12	Δ
DR.121.12000.H7.A1	120	H7	121	.6	45°	5.3	12	Δ
DR.141.13000.H7.A1	130	H7	141	.6	45°	5.3	12	Δ
DR.141.14000.H7.A1	140	H7	141	.6	45°	5.3	12	Δ

Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

P	●
M	○
K	●
N	○
S	-
H	-



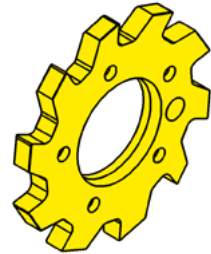
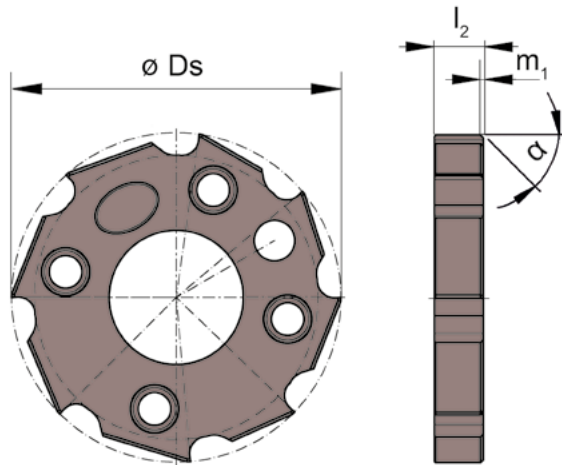
z8

P

K

z10

z12



D

Grades

Picture = right hand cutting version

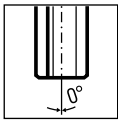
▲ In stock

△ 2 weeks

Part number	Ds	Tolerance	Size	m_1	α	l_2	Z	HL3H
DR.044.03600.H7.B1	36	H7	44	.75	25°	4.3	8	Δ
DR.044.03700.H7.B1	37	H7	44	.75	25°	4.3	8	Δ
DR.044.03800.H7.B1	38	H7	44	.75	25°	4.3	8	Δ
DR.044.03900.H7.B1	39	H7	44	.75	25°	4.3	8	Δ
DR.044.04000.H7.B1	40	H7	44	.75	25°	4.3	8	Δ
DR.044.04100.H7.B1	41	H7	44	.75	25°	4.3	8	Δ
DR.044.04200.H7.B1	42	H7	44	.75	25°	4.3	8	Δ
DR.044.04300.H7.B1	43	H7	44	.75	25°	4.3	8	Δ
DR.052.04400.H7.B1	44	H7	52	.75	25°	4.3	10	Δ
DR.052.04500.H7.B1	45	H7	52	.75	25°	4.3	10	Δ
DR.052.04600.H7.B1	46	H7	52	.75	25°	4.3	10	Δ
DR.052.04700.H7.B1	47	H7	52	.75	25°	4.3	10	Δ
DR.052.04800.H7.B1	48	H7	52	.75	25°	4.3	10	Δ
DR.052.04900.H7.B1	49	H7	52	.75	25°	4.3	10	Δ
DR.052.05000.H7.B1	50	H7	52	.75	25°	4.3	10	Δ
DR.061.05200.H7.B1	52	H7	61	.75	25°	4.3	10	Δ
DR.061.05500.H7.B1	55	H7	61	.75	25°	4.3	10	Δ
DR.061.06000.H7.B1	60	H7	61	.75	25°	4.3	10	Δ
DR.081.06500.H7.B1	65	H7	81	.86	25°	4.3	12	Δ
DR.081.06800.H7.B1	68	H7	81	.86	25°	4.3	12	Δ
DR.081.07000.H7.B1	70	H7	81	.86	25°	4.3	12	Δ
DR.081.07500.H7.B1	75	H7	81	.86	25°	4.3	12	Δ
DR.081.08000.H7.B1	80	H7	81	.86	25°	4.3	12	Δ
DR.101.08500.H7.B1	85	H7	101	.97	25°	4.3	12	Δ
DR.101.09000.H7.B1	90	H7	101	.97	25°	4.3	12	Δ
DR.101.09500.H7.B1	95	H7	101	.97	25°	4.3	12	Δ
DR.101.10000.H7.B1	100	H7	101	.97	25°	4.3	12	Δ
DR.121.11000.H7.B1	110	H7	121	1.29	25°	5.3	12	Δ
DR.121.12000.H7.B1	120	H7	121	1.29	25°	5.3	12	Δ
DR.141.13000.H7.B1	130	H7	141	1.29	25°	5.3	12	Δ
DR.141.14000.H7.B1	140	H7	141	1.29	25°	5.3	12	Δ

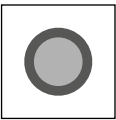
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

P	●
M	○
K	●
N	○
S	-
H	-



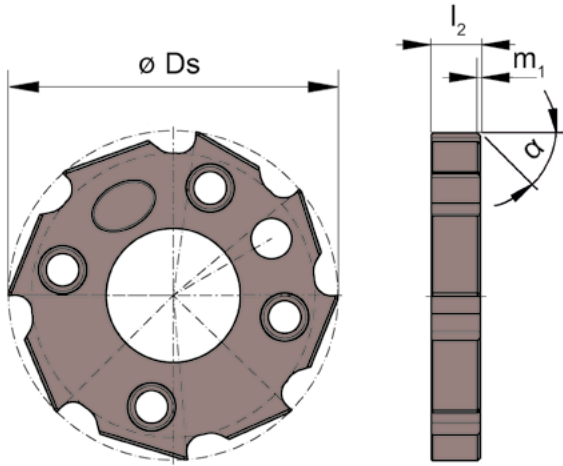
z8

Cermet



P

z10



Grades

Picture = right hand cutting version

▲ In stock

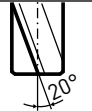
Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	H20
DR.044.03600.H7.A6	36	H7	44	.35	45°	4.3	8	Δ
DR.044.04000.H7.A6	40	H7	44	.35	45°	4.3	8	Δ
DR.044.04200.H7.A6	42	H7	44	.35	45°	4.3	8	Δ
DR.052.04500.H7.A6	45	H7	52	.35	45°	4.3	10	Δ
DR.052.05000.H7.A6	50	H7	52	.35	45°	4.3	10	Δ

For recommendations of cutting geometry and carbide grade please see technical instructions

Dimensions in mm

P	●
M	o
K	-
N	-
S	-
H	-



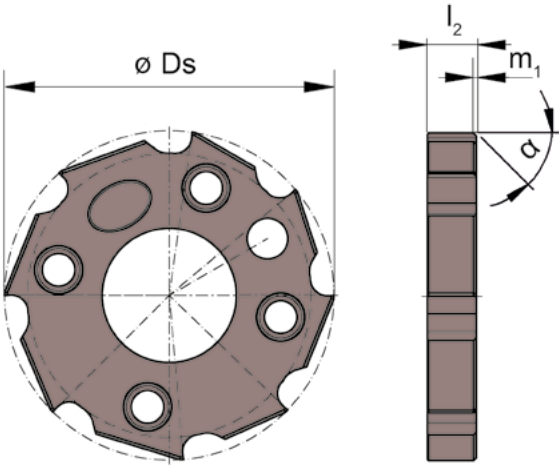
z8

Cermet



z10

P



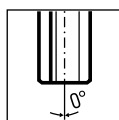
Picture = right hand cutting version

Grades

▲ In stock

Δ 2 weeks

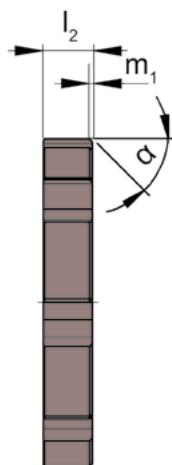
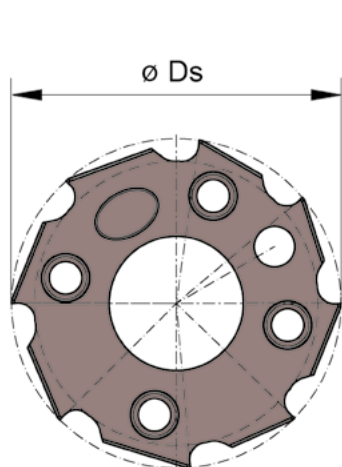
Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	H20	
DR.044.03600.H7.B6	36	H7	44	.75	25°	4.3	8	Δ	●
DR.044.04000.H7.B6	40	H7	44	.75	25°	4.3	8	Δ	o
DR.044.04200.H7.B6	42	H7	44	.75	25°	4.3	8	Δ	-
DR.052.04500.H7.B6	45	H7	52	.75	25°	4.3	10	Δ	-
DR.052.05000.H7.B6	50	H7	52	.75	25°	4.3	10	Δ	-
For recommendations of cutting geometry and carbide grade please see technical instructions									P
Dimensions in mm									M
									K
									N
									S
									H



z8

N

z10



Grades

Picture = right hand cutting version

▲ In stock

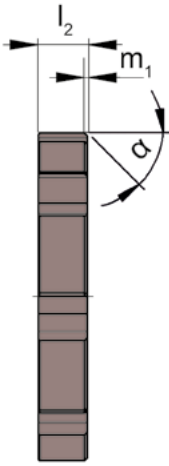
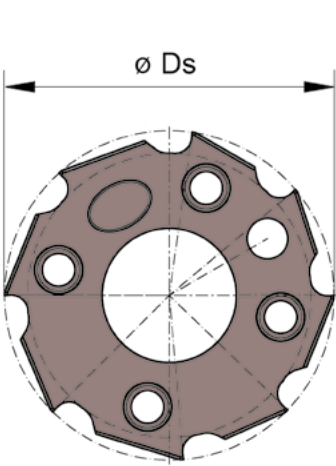
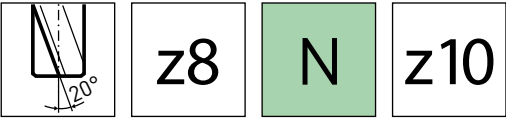
Δ 2 weeks

Part number	Ds	Tolerance	Size	m_1	α	l_2	Z	DT2H
DR.044.03600.H7.A7	36	H7	44	.35	45°	4.3	8	Δ
DR.044.04000.H7.A7	40	H7	44	.35	45°	4.3	8	Δ
DR.044.04200.H7.A7	42	H7	44	.35	45°	4.3	8	Δ
DR.052.04500.H7.A7	45	H7	52	.35	45°	4.3	10	Δ
DR.052.05000.H7.A7	50	H7	52	.35	45°	4.3	10	Δ

Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview

Dimensions in mm

P	-
M	-
K	-
N	●
S	-
H	-



Picture = right hand cutting version

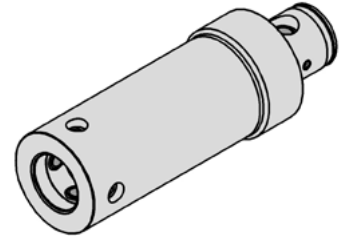
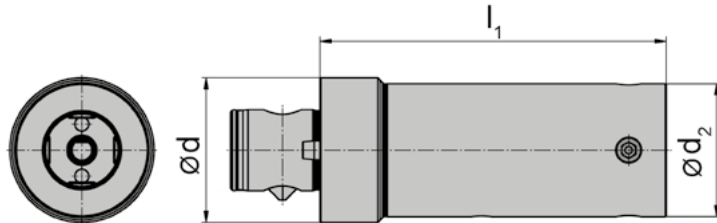
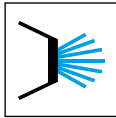
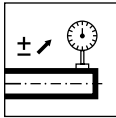
Grades

▲ In stock

Δ 2 weeks

Part number	Ds	Tolerance	Size	m ₁	α	l ₂	Z	DT2H	
DR.044.03600.H7.B7	36	H7	44	.75	25°	4.3	8	Δ	
DR.044.04000.H7.B7	40	H7	44	.75	25°	4.3	8	Δ	
DR.044.04200.H7.B7	42	H7	44	.75	25°	4.3	8	Δ	
DR.052.04500.H7.B7	45	H7	52	.75	25°	4.3	10	Δ	
DR.052.05000.H7.B7	50	H7	52	.75	25°	4.3	10	Δ	
Recommendations for cutting geometry and carbide grade combined with the suitable IK variant of the reaming shank can be found in the basic selection overview									P -
									M -
									K -
									N ●
									S -
									H -

Dimensions in mm

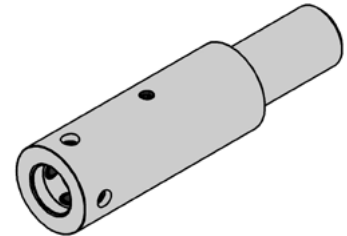
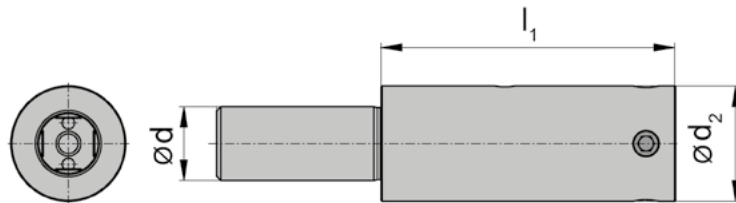
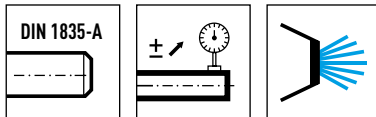
Beta-
Modul

Part number	Ds _{min}	Ds _{max}	l ₁	d	d ₂	Form	Size
VDR.044.32.55.32.BM	35.601	43.6	55	32	32	BM	44
VDR.044.32.80.32.BM	35.601	43.6	80	32	32	BM	44
VDR.052.39.100.40.BM	43.601	51.6	100	40	39	BM	52
VDR.052.39.60.40.BM	43.601	51.6	60	40	39	BM	52
VDR.061.46.120.50.BM	51.601	60.6	120	50	46	BM	61
VDR.061.46.70.50.BM	51.601	60.6	70	50	46	BM	61
VDR.081.56.140.50.BM	60.601	80.6	140	50	56	BM	81
VDR.081.56.80.50.BM	60.601	80.6	80	50	56	BM	81
VDR.101.76.100.63.BM	80.601	200.2	100	63	76	BM	101 200
VDR.101.76.160.63.BM	80.601	200.2	160	63	76	BM	101 200

Dimensions in mm

Spare Parts

Shank	Screw
VDR.044.32...	C00 90 08
VDR....	C00 90 10
VDR.081.56...	C009012
VDR.101.76....	C009016



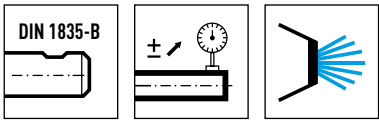
D

Part number	Ds _{min}	Ds _{max}	l ₁	d	d ₂	Form	Size
VDR.044.32.55.20.A	35.601	43.6	55	20	32	A	44
VDR.044.32.80.20.A	35.601	43.6	80	20	32	A	44
VDR.052.39.60.25.A	43.601	51.6	60	25	39	A	52
VDR.052.39.100.25.A	43.601	51.6	100	25	39	A	52
VDR.061.46.120.32.A	51.601	60.6	120	32	46	A	61
VDR.061.46.70.32.A	51.601	60.6	70	32	46	A	61
VDR.081.56.140.40.A	60.601	80.6	140	40	56	A	81
VDR.081.56.80.40.A	60.601	80.6	80	40	56	A	81
VDR.101.76.100.40.A	80.601	200.2	100	40	76	A	101 200
VDR.101.76.160.40.A	80.601	200.2	160	40	76	A	101 200

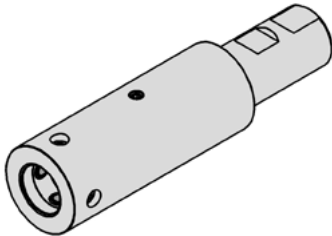
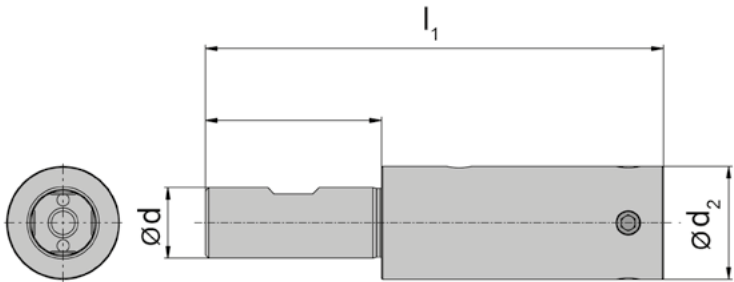
Dimensions in mm

Spare Parts

Shank	Screw
VDR.044.32...	C00 90 08
VDR....	C00 90 10
VDR.081.56...	C009012
VDR.101.76....	C009016



D

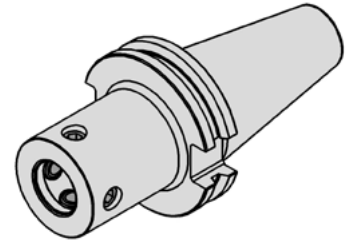
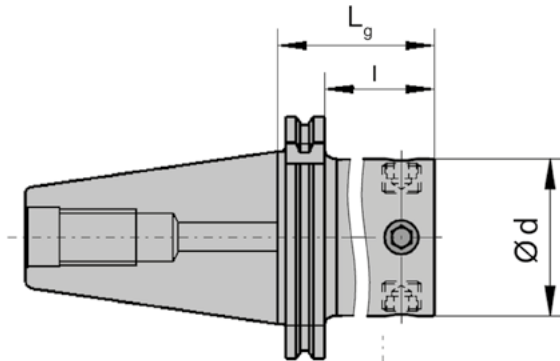
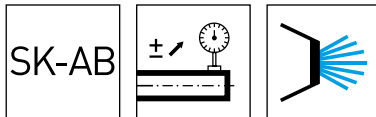


Part number	Ds _{min}	Ds _{max}	l ₁	d	d ₂	Form	Size
VDR.044.32.55.20.B	35.601	43.6	55	20	32	B	44
VDR.044.32.80.20.B	35.601	43.6	80	20	32	B	44
VDR.052.39.60.25.B	43.601	51.6	60	25	39	B	52
VDR.052.39.100.25.B	43.601	51.6	100	25	39	B	52
VDR.061.46.70.32.B	51.601	60.6	70	32	46	B	61
VDR.061.46.120.32.B	51.601	60.6	120	32	46	B	61
VDR.081.56.80.40.B	60.601	80.6	80	40	56	B	81
VDR.081.56.140.40.B	60.601	80.6	140	40	56	B	81
VDR.101.76.100.40.B	80.601	200.2	100	40	76	B	101 200
VDR.101.76.160.40.B	80.601	200.2	160	40	76	B	101 200

Dimensions in mm

Spare Parts

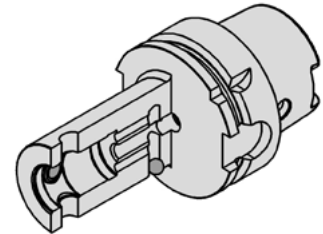
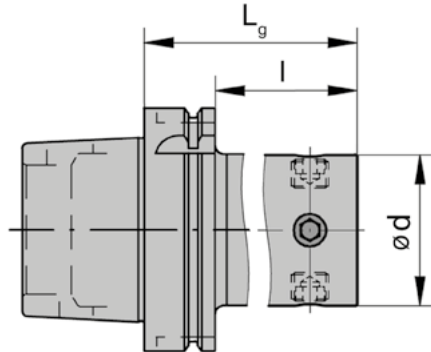
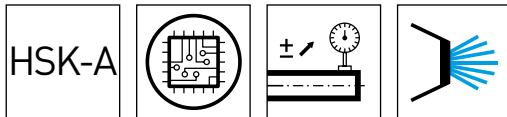
Shank	Screw
VDR.044.32...	C00 90 08
VDR....	C00 90 10
VDR.081.56...	C009012
VDR.101.76....	C009016



D

Part number	Ds _{min}	Ds _{max}	l	Lg	d	Size	System	Weight [kg]
VDR.044.065.40AD	35.601	43.6	46	65	32	44	SK 40	1.1
VDR.052.065.40AD	43.601	51.6	46	65	39	52	SK 40	1.2
VDR.061.075.40AD	51.601	60.6	56	75	46	61	SK 40	1.4
VDR.081.080.40AD	60.601	80.6	61	80	56	81	SK 40	1.6
VDR.101.095.40AD	80.601	200.2	76	95	76	101 200	SK 40	2.2
VDR.044.065.50AD	35.601	43.6	46	65	32	44	SK 50	2.9
VDR.052.065.50 AD	43.601	51.6	46	65	39	52	SK 50	3
VDR.061.075.50AD	51.601	60.6	56	75	46	61	SK 50	3.2
VDR.081.085.50AD	60.601	80.6	66	85	56	81	SK 50	3.6
VDR.101.095.50AD	80.601	200.2	76	95	76	101 200	SK 50	4.6

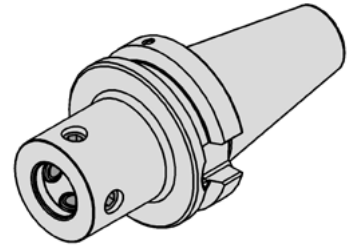
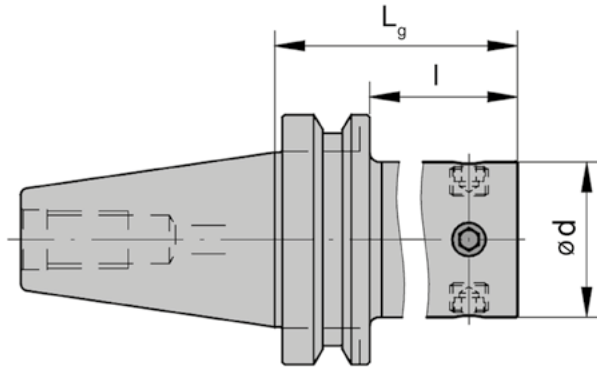
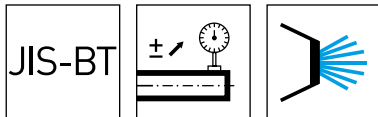
Dimensions in mm



Part number	Ds _{min}	Ds _{max}	l	Lg	d	Size	System	Weight [kg]
VDR.044.085.A063	35.601	43.6	59	85	32	44	HSK63	1
VDR.052.090.A063	43.601	51.6	64	90	39	52	HSK63	1.2
VDR.061.100.A063	51.601	60.6	74	100	46	61	HSK63	1.5
VDR.081.105.A063	60.601	80.6	79	105	56	81	HSK63	1.8
VDR.101.120.A063	80.601	200.2	94	120	76	101 200	HSK63	2.4
VDR.044.090.A100	35.601	43.6	61	90	32	44	HSK100	2.3
VDR.052.095.A100	43.601	51.6	66	95	39	52	HSK100	2.6
VDR.061.100.A100	51.601	60.6	71	100	46	61	HSK100	2.8
VDR.081.120.A100	60.601	80.6	91	120	56	81	HSK100	3.5
VDR.101.130.A100	80.601	200.2	101	130	76	101 200	HSK100	5

Coolant tube is not included - separate order required

Dimensions in mm



D

Part number	Ds _{min}	Ds _{max}	l	Lg	d	Size	System	Weight [kg]
VDR.044.060.40BT	35.601	43.6	33	60	32	44	JIS-BT 40	1.1
VDR.052.065.40BT	43.601	51.6	38	65	39	52	JIS-BT 40	1.3
VDR.061.070.40BT	51.601	60.6	43	70	46	61	JIS-BT 40	1.4
VDR.081.080.40BT	60.601	80.6	53	80	56	81	JIS-BT 40	1.7
VDR.101.095.40BT	80.601	200.2	-	95	76	101 200	JIS-BT 40	2.5
VDR.044.065.50BT	35.601	43.6	27	65	32	44	JIS-BT 50	3.7
VDR.052.065.50BT	43.601	51.6	27	65	39	52	JIS-BT 50	3.8
VDR.061.075.50BT	51.601	60.6	37	75	46	61	JIS-BT 50	4
VDR.081.085.50BT	60.601	80.6	47	85	56	81	JIS-BT 50	4.3
VDR.101.095.50BT	80.601	200.2	57	95	76	101 200	JIS-BT 50	5.1

Dimensions in mm

The information below explains the proper handling and set up for reaming tools.



Tool adjustments should be performed directly in the machine/spindle to achieve highest precision.



Insert the reamer shaft into the Hydraulic Expansion Toolholder or reducer sleeve until it bottoms out.



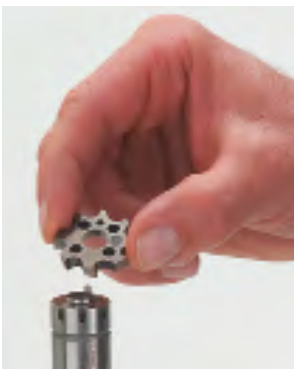
Tighten the clamping screw of the Hydraulic Expansion Toolholder with a hex wrench.



Turn the four adjusting screws with the TORX-PLUS® wrench T15PQ until contact, and check the runout with a μm indicator inside the arbor by hand rotating the tool.



Adjust the runout by turning the adjustment screws on their axis.



Lay insert on shaft with positioning hole over the pin and tighten the screws lightly.



Tighten the screws with a torque setter screw driver in a crisscross pattern.

Adjusting

To achieve the best reaming results a tool with zero runout is desirable. In order to compensate for any errors due to runout from the tool holders or the machine spindle, the following holders are recommended: compensation holders, hydraulic chucks, or shrink fit holders. DR reamers can be measured with different methods:

Through insert holder short taper

With the reamer disassembled measure directly on the insert holders short taper. High accuracy, simple handling. This is the most accurate and preferred method.



Through circular land

Measuring directly behind chamfer angle on external insert diameter. All interface errors are eliminated. This is the preferred method for small diameter inserts.



On the external diameter of the insert holder

DR tool holders are manufactured very accurately on all diameters. A method easy to handle that offers reasonable measuring results.



Shanks with integrated compensation device

These shanks with integrated comp. must be used for reaming diameters bigger than 35 mm



Handling

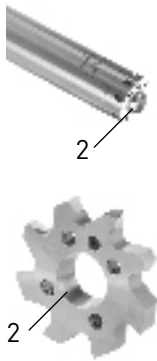
Secure central locking screw (see value no 1). Measure runout and set the cutting edge of the insert to the highest point. Compensate half of the total runout by using the adjustment screws. Check runout and repeat the adjustment if necessary. Secure central locking screw according to value 2 in chart below.



Parameter Md	1 Nm	2 Nm
DR 044	35	-
DR 052	35	-
DR 061	55	-
DR 081	60	85
DR 101	60	120
DR 121	60	120
DR 141	60	120

Changing inserts

1. Don't take the shank out of the taper holder. Remove clamping screws and used insert.
2. Clean short taper of the shank carefully and check for possible damages.
3. Set new insert on position (pay attention to the positioning pin) and slightly tighten the clamping screws.
4. If available, use the torxtorque screw driver to tighten the screws crosswise (see torque chart)



Parameter Md	Nm	Torx
DR 016	0.7	6
DR 019	0.7	6
DR 024	1.5	8
DR 029	1.5	8
DR 036	1.5	8
DR 044	1.5	8
DR 052	1.5	8
DR 061	1.5	8
DR 081	3.5	15
DR 101	3.5	15
DR121	3.5	15
DR141	3.5	15



Measuring of insert diameter

DR inserts have an unequally spaced pitch. To measure the diameter line up the two marked cutting edges. Measure directly on the chamfered angle because the inserts are ground with taper.



Modular System for Ø 139.8 - 200.2 mm

URMA Adaptors
See URMA Adaptor Chapter

Balancing shank

BD

BH

BT

VDR

VDR

cylindrical

direct

B13

Extension
Beta-Modul

VDR

Balancing shank
Beta-Modul

MDR

Reaming insert holder

DR

Reaming head

Screws for insert

Screw for holder

For requests with specifications of the bore tolerance, the reaming head diameter is defined by the HORN standard. Depending on the diameter and the tolerance range, the reaming head diameter will be within 65% to 80% of the total bore tolerance range.

The diameter specified by the HORN standard is always shown as a target size dimension.

Example 1:

Request with ISO bore tolerance
Diameter: 160H7

Target size diameter according to HORN
standard: Diameter: 160,033 mm

Reaming head part number:
DR.160033.A01.L.S HL3M

Example 2:

Request with bore tolerance
Diameter: 185 +0,030 -0,015 mm

Target size diameter according HORN
standard: Diameter: 185,021 mm

Reaming head part number:
DR.185021.C01.G.S AN4M

Example 3:

Request with reaming head target size
Diameter: 193,158 mm

Target size diameter according HORN-
standard: Diameter: 193,158 mm

Reaming head part number:
DR.193158.B06.L.S HL3M

The reaming head manufacturing tolerance
is always +/-0,003 mm

Ordering example with standard dimension

DR.150033.G16.L.2 HL3M (N)

D

DR	DR System
150.033	Diameter in mm
G16	Cutting Geometry
L	Helix Angle (G = straight, L = left-hand helix)
2	Cutting Edge Prep
HL3	Coating
M	Carbide Substrate
(N)	Reserved for Reprocessing (N)

Cutting Edge Prep Options

S	No Edge Prep
2	Medium Edge Prep
3	Heavy Edge Prep

The cutting edge diameter can be determined by completing the part number.
Cutting data available upon request

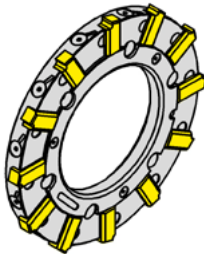
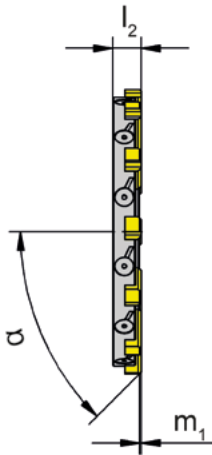
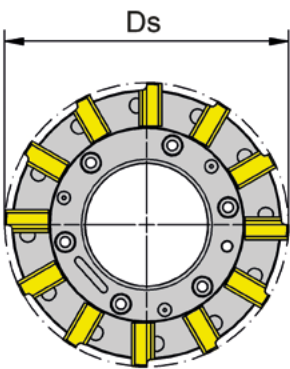
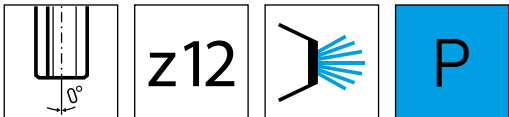
straight fluted reaming heads -
for blind holes and partly for through holes

Geometry	Angle	Preparation	Rake Angle	P	M	K	N
DR. _____ A06.G.S HL3M	45°	-	x2	•	•	○	
DR. _____ G16.G.S HL3M	60°/43°	-	x2	•	•	○	
DR. _____ C16.G.S HL3M	45°/20°	-	x2	•	•	○	
DR. _____ A06.G.2 HL3M	45°	2	x2	○		•	
DR. _____ G16.G.2 HL3M	60°/43°	2	x2	○		•	
DR. _____ C16.G.2 HL3M	45°/20°	2	x2	○		•	
DR. _____ A01.G.3 AN4M	45°	3	x1	○		•	
DR. _____ C11.G.3 AN4M	45°/20°	3	x1	○		•	
DR. _____ G16.G.S NP1M	60°/43°	-	x2				•

In short chipping material also suitable for through holes.

left hand fluted reaming heads -
for through holes

Geometry	Angle	Preparation	Rake Angle	P	M	K	N
DR. _____ C16.L.S HL3M	45°/20°	-	x2	•	•	○	
DR. _____ B06.L.S HL3M	25°	-	x2	•	•	○	
DR. _____ C16.L.2 HL3M	45°/20°	2	x2	○		•	
DR. _____ B06.L.2 HL3M	25°	2	x2	○		•	
DR. _____ A06.L.S HL3M	45°	-	x2	•	•	○	
DR. _____ C16.L.S NP1M	45°/20°	-	x2				•



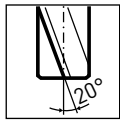
Grades

▲ In stock

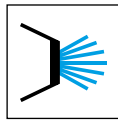
Δ 2 weeks

Part number	Ds	Ds _{min}	Ds _{max}	Size	m ₁	α	l ₂	Z
DR.140033.A06.G.S	140.033	139.801	149.8	150	.85	45°	15	12
DR.150033.A06.G.S	150.033	149.801	159.8	160	.85	45°	15	12
DR.160033.A06.G.S	160.033	159.801	169.8	170	.85	45°	15	12
DR.170033.A06.G.S	170.033	169.801	179.8	180	.85	45°	15	12
DR.180033.A06.G.S	180.033	179.801	189.8	190	.85	45°	15	12
DR.190037.A06.G.S	190.037	189.801	200.2	200	.85	45°	15	12
DR.200037.A06.G.S	200.037	189.801	200.2	200	.85	45°	15	12

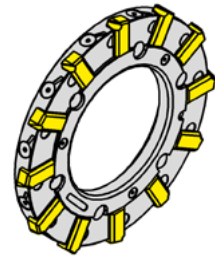
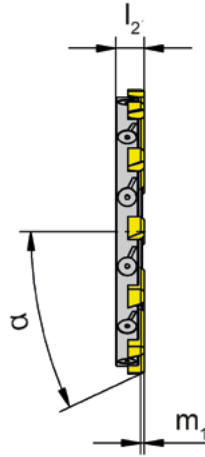
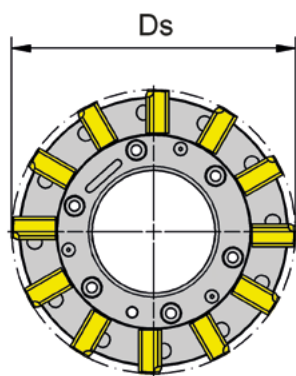
Dimensions in mm



z12



P



D

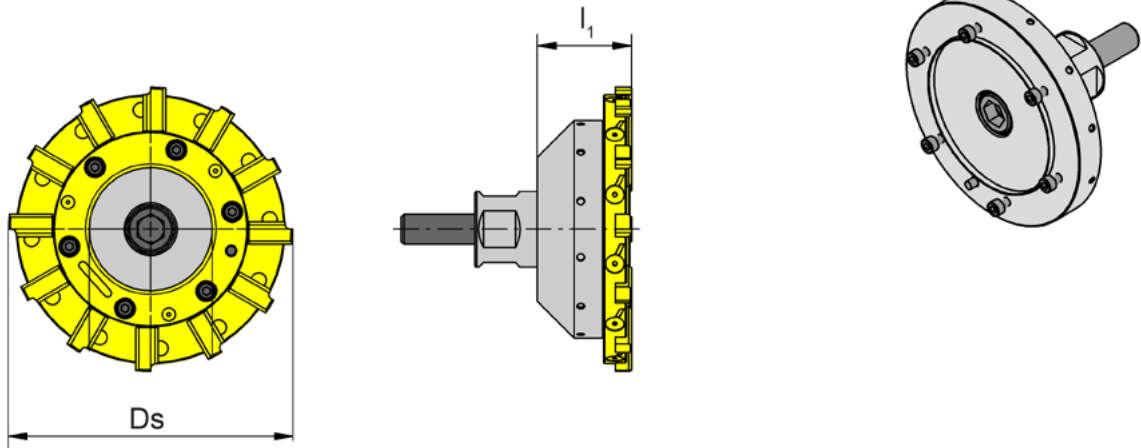
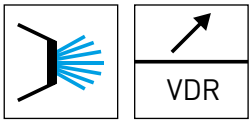
Grades

▲ In stock

Δ 2 weeks

Part number	Ds	Ds _{min}	Ds _{max}	Size	m ₁	α	l ₂	Z
DR.140033.B06.L.S	140.033	139.801	149.8	150	1.82	25°	15	12
DR.140033.B06.L.S	140.033	139.801	149.8	150	1.82	25°	15	12
DR.150033.B06.L.S	150.033	149.801	159.8	160	1.82	25°	15	12
DR.160033.B06.L.S	160.033	159.801	169.8	170	1.82	25°	15	12
DR.170033.B06.L.S	170.033	169.801	179.8	180	1.82	25°	15	12
DR.180033.B06.L.S	180.033	179.801	189.8	190	1.82	25°	15	12
DR.190037.B06.L.S	190.037	189.801	200.2	200	1.82	25°	15	12
DR.200037.B06.L.S	200.037	189.801	200.2	200	1.82	25°	15	12

Dimensions in mm

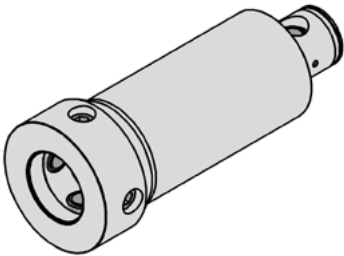
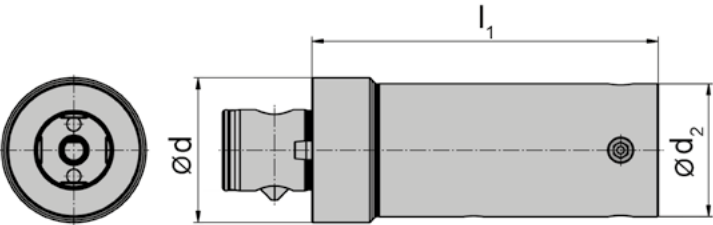
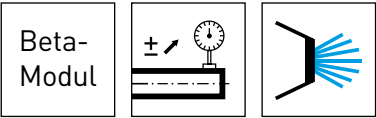


Part number	$D_{s_{min}}$	$D_{s_{max}}$	l_1	D_s	Coolant	Size	Weight [kg]
MDR.150.115.50.V.D	139.8	159.8	50	115	D	150 160	2.7
MDR.170.135.50.V.D	159.801	179.8	50	135	D	170 180	3.5
MDR.190.155.50.V.D	179.801	200.2	50	155	D	190 200	4.6

Dimensions in mm

Spare Parts

Reaming insert holder	Screw
MDR...	C00 22 07

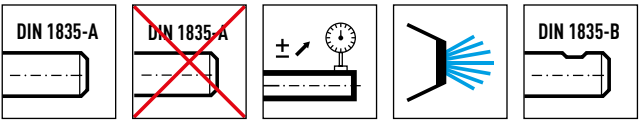


Part number	Ds _{min}	Ds _{max}	l ₁	d	d ₂	Form	Size
VDR.101.76.100.63.BM	80.601	200.2	100	63	76	BM	101 200
VDR.101.76.160.63.BM	80.601	200.2	160	63	76	BM	101 200

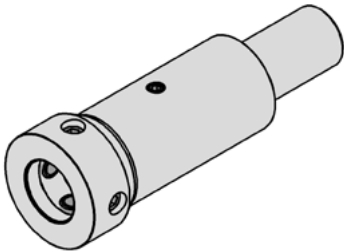
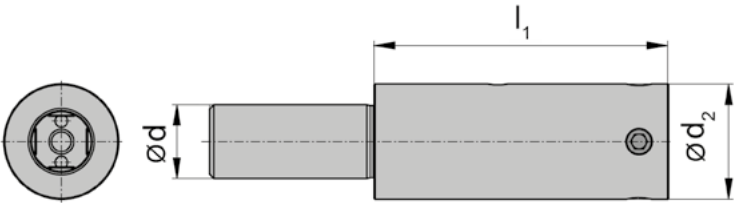
Dimensions in mm

Spare Parts

Shank	Screw
VDR...	C009016



D

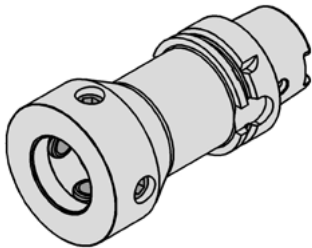
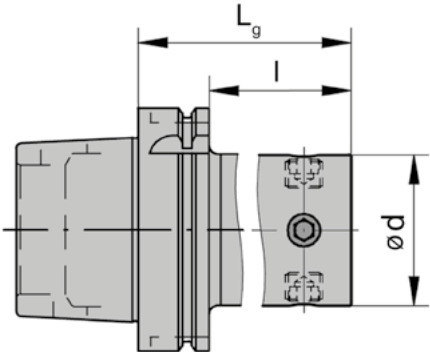
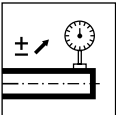
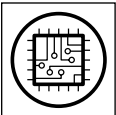


Part number	Ds _{min}	Ds _{max}	l ₁	d	d ₂	Form	Size
VDR.101.76.100.40.A	80.601	200.2	100	40	76	A	101 200
VDR.101.76.160.40.A	80.601	200.2	160	40	76	A	101 200
VDR.101.76.100.40.B	80.601	200.2	100	40	76	B	101 200
VDR.101.76.160.40.B	80.601	200.2	160	40	76	B	101 200

Dimensions in mm

Spare Parts

Shank	Screw
VDR...	C009016



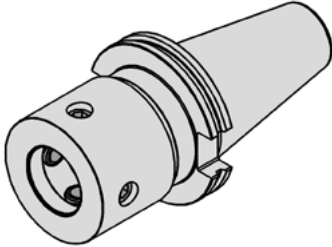
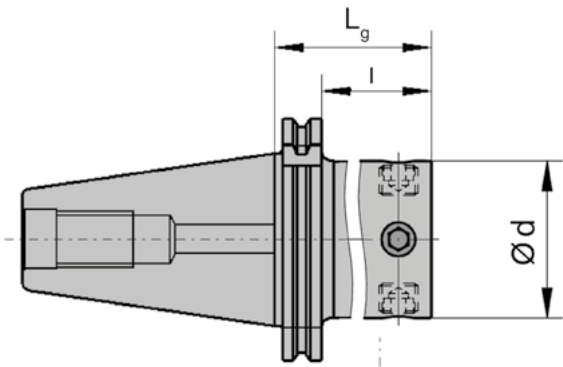
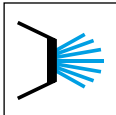
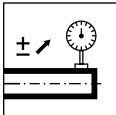
Part number	Ds _{min}	Ds _{max}	l	Lg	d	Size	System	Weight [kg]
VDR.101.120.A063	80.601	200.2	94	120	76	101 200	HSK63	2.4
VDR.101.130.A100	80.601	200.2	101	130	76	101 200	HSK100	5

Dimensions in mm

Spare Parts

Shank	Screw
VDR...	C009016

SK-AB

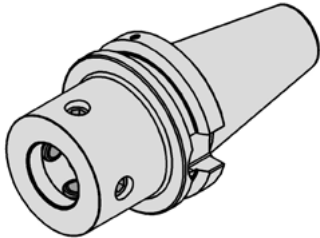
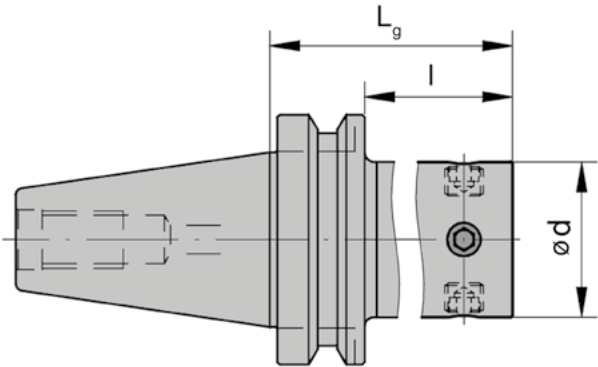
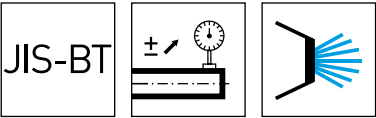


Part number	Ds _{min}	Ds _{max}	l	Lg	d	Size	System	Weight [kg]
VDR.101.095.40AD	80.601	200.2	76	95	76	101 200	SK 40	2.2
VDR.101.095.50AD	80.601	200.2	76	95	76	101 200	SK 50	4.6

Dimensions in mm

Spare Parts

Shank	Screw
VDR...	C009016



Part number	Ds _{min}	Ds _{max}	l	Lg	d	Size	System	Weight [kg]
VDR.101.095.40BT	80.601	200.2	-	95	76	101 200	JIS-BT 40	2.5
VDR.101.095.50BT	80.601	200.2	57	95	76	101 200	JIS-BT 50	5.1

Dimensions in mm

Spare Parts

Shank	Screw
VDR...	C009016

D

Grade	Chemical Composition	Recommendation						Application
HL3H	AlCrN	P05	M05	K05	N05	S05	H05	For medium to high cutting speeds, also suitable for interrupted cut
		P10	M10	K10	N10	S10	H10	
		P20	M20	K20	N20	S20	H20	
		P30	M30	K30	N30	S30	H30	
		P40	M40	K40	N40			
		P50	M50					
AN2H AN4H	AlCrSiN	P05	M05	K05	N05	S05	H05	For high cutting speed, also suitable for low cutting interruptions
		P10	M10	K10	N10	S10	H10	
		P20	M20	K20	N20	S20	H20	
		P30	M30	K30	N30	S30	H30	
		P40	M40	K40	N40			
		P50	M50					
DT2H	DLC	P05	M05	K05	N05	S05	H05	First choice for Al-wrought alloys. For medium to high cutting speeds, also suitable for interrupted cut
		P10	M10	K10	N10	S10	H10	
		P20	M20	K20	N20	S20	H20	
		P30	M30	K30	N30	S30	H30	
		P40	M40	K40	N40			
		P50	M50					
NP1H	ta-C	P05	M05	K05	N05	S05	H05	First choice for Al (Si < 5%) also suitable for interrupted cut
		P10	M10	K10	N10	S10	H10	
		P20	M20	K20	N20	S20	H20	
		P30	M30	K30	N30	S30	H30	
		P40	M40	K40	N40			
		P50	M50					
H20	uncoated	P05	M05	K05	N05	S05	H05	System DR016 - DR101 only, for medium to high cutting speed in steel (Ni < 2%), with max. tensile strength of 1200 N/mm². Cast iron A536 recommended. Not suitable for interrupted cut
		P10	M10	K10	N10	S10	H10	
		P20	M20	K20	N20	S20	H20	
		P30	M30	K30	N30	S30	H30	
		P40	M40	K40	N40			
		P50	M50					
AD3H AD4H	TiAlN+AlCrN	P05	M05	K05	N05	S05	H05	For hardened steels up to max. 63 HRC, at low cutting speeds, feed rates and stock removal
		P10	M10	K10	N10	S10	H10	
		P20	M20	K20	N20	S20	H20	
		P30	M30	K30	N30	S30	H30	
		P40	M40	K40	N40			
		P50	M50					

straight fluted reaming inserts -
for blind holes and partly for through holes

Geometry	Angle	Backtaper	Rake Angle	P	M	K	N	H
A1	45°	x1	x1	•	o	•	o	o
A6	45°	x2	x1	•	o	•	o	•
A7	45°	x2	x1.5	•	•	o	•	-

left hand fluted reaming inserts -
for through holes

Geometry	Angle	Backtaper	Rake Angle	P	M	K	N	H
B1	25°	x1	x1	•	o	•	o	-
B6	25°	x2	x1	•	o	•	o	-
B7	25°	x2	x1.5	•	•	o	•	-

D

D

Material			Material group	Hardness Brinell (HB)	Tensile Strength R_m [N/mm ²]	Example Material SAE, DIN	
P	Carbon steel	~ 0,2 % C	P1.1	125	430	1015 , CK15	
		~ 0,4% C annealed	P1.2	190	610	A515 , 19Mn6	
		~ 0,4% C quenched	P1.3	210	640	1335 , 36Mn5	
		~ 0,6% C annealed	P1.4	190	610	1055 , C55	
		~ 0,6% C quenched	P1.5	300	1000	1060 , CK60	
		Free cutting steel	P1.6	220	750	1213 , 9SMn28	
	niedrig legierter Stahl (<5%) Alloyed steel	annealed	P2.1	180	590	52100 , 100Cr6	
		quenched	P2.2	280	960	3415 , 14NiCr10	
		quenched	P2.3	350	1250	4135 , 34CrMo4	
		quenched	P2.4	430	1450	5155 , 55Cr3	
	high alloyed steel (>5%)	annealed	P3.1	200	680	442 , X10CrAl18	
		hardened	P3.2	350	1200	D3 , X210Cr2	
	Cast steel	unalloyed	P4.1	180	590	A27 , GE200	
		alloyed	P4.2	220	750	10295 , GX40CrSi28	
	Sintered steel	soft	P5.1	220	570	P3082 , Sint-D39	
M	Stainless steel	martensitic ferritic	M1.1	200	680	17-4 PH , 455 , 465 , X16Cr13	
		austenitic	M1.2	300	1000	316Ti , X6CrNi- MoTi17-12-2	
		austenitic ferritic	M1.3	230	780	316LN , X2CrNi- Mo-N17-13-3	

TABLE FORMAT

655	=	Suggested cutting speed (inch)
200		Suggested cutting speed (metric)

	Cutting speed vc (m/min) / Start values with IC							
	MG10	HL3H	AN2H AN4H	AD3H AD4H	DT2H	NP1H	H20	
	80 - 115 25 - 35	460 - 720 140 - 220	460 - 720 140 - 220				490 - 785 150 - 240	
	65 - 100 20 - 30	425 - 625 130 - 190	425 - 625 130 - 190				460 - 720 140 - 220	
	60 - 100 18 - 30	395 - 590 120 - 180	395 - 590 120 - 180				425 - 655 130 - 200	
	50 - 80 15 - 25	330 - 525 100 - 160	330 - 525 100 - 160				360 - 560 110 - 170	
	40 - 60 12 - 18	165 - 625 50 - 190	165 - 625 50 - 190				330 - 525 100 - 160	
	65 - 100 20 - 30	395 - 590 120 - 180	395 - 590 120 - 180				425 - 625 130 - 190	
	65 - 100 20 - 30	395 - 590 120 - 180	395 - 590 120 - 180				425 - 625 130 - 190	
	30 - 50 9 - 15	330 - 525 100 - 160	330 - 525 100 - 160				360 - 560 110 - 170	
	20 - 35 6 - 10	260 - 395 80 - 120	260 - 395 80 - 120					
	15 - 30 5 - 9	195 - 330 60 - 100	195 - 330 60 - 100					
	15 - 25 4 - 8	260 - 395 80 - 120	260 - 395 80 - 120					
	10 - 15 3 - 5	165 - 295 50 - 90	165 - 295 50 - 90					
	50 - 80 15 - 25	330 - 525 100 - 160	330 - 525 100 - 160				360 - 560 110 - 170	
	40 - 60 12 - 18	260 - 460 80 - 140	260 - 460 80 - 140				165 - 625 50 - 190	
		165 - 625 50 - 190	165 - 625 50 - 190					
	15 - 25 4 - 8	165 - 295 50 - 90	165 - 295 50 - 90					
		100 - 165 30 - 50						
		50 - 80 15 - 25	50 - 80 15 - 25					

TABLE FORMAT

655
200

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Suggested cutting speed (inch)
Suggested cutting speed (metric)

D

Material			Material group	Hardness Brinell (HB)	Tensile Strength R _m [N/mm²]	Example Material SAE, DIN	
K	Grey cast iron	low tensile strength	K1.1	180	250	A48 Class 35B , GG-25	
		high tensile strength	K1.2	250	350	A48 Class 60 , GG-40	
	Spheroidal graphite cast iron	ferritic	K2.1	160	400	A536 60-40-18 , GGG-40	
		perlitic	K2.1	260	700	A536 80-60-03 , GGG-60	
	Malleable cast iron	ferritic	K3.1	200	400	A47 Grade 35018 , GTW-45	
		perlitic	K3.2	260	700	A47 Grade 55004 , GTS-55-04	
	Ausferritic spheroidal cast iron / ADI	quenched	K4.1	260	800		
		quenched	K4.2	350	1050		
		quenched	K4.3	450	1400		
	N	Al-alloys	not heat treatable	N1.1	30		5005 , AlMg1
heat treatable			N1.2	100	340	6061, 7075 , AlMgSi1	
Al-cast-alloy		< 6% Si	N2.1	80	300	AA 441 , AlMgSi6	
		6-10% Si	N2.2	100	320	AA 356 , AlSi7Mg	
		10-15 % Si	N2.3	130	450	AA 413 , AlSi12	
Copper-alloys		pure copper	N3.1	100	340	C11000 , Cu	
		brass	N3.2	90	310	C38500 , CuZn40Pb	
		lead-free brass	N3.3	110	430	C28000 , CuZn40	
		high strength	N3.4	300	1000	C67800 , CuZ- n25Al5-Mn4Fe3	
Graphite			N4.1				

TABLE FORMAT

655	=	Suggested cutting speed (inch)
200		Suggested cutting speed (metric)

	Cutting speed vc (m/min) / Start values with IC							
	MG10	HL3H	AN2H AN4H	AD3H AD4H	DT2H	NP1H	H20	
	65 - 100 20 - 30	360 - 560 110 - 170	360 - 560 110 - 170					
	65 - 100 20 - 30	360 - 560 110 - 170	360 - 560 110 - 170					
	50 - 80 15 - 25	360 - 560 110 - 170	360 - 560 110 - 170				360 - 560 110 - 170	
	45 - 70 14 - 22	260 - 460 80 - 140	260 - 460 80 - 140					
	50 - 80 15 - 25	360 - 560 110 - 170	360 - 560 110 - 170					
	45 - 70 14 - 22	260 - 460 80 - 140	260 - 460 80 - 140					
		165 - 295 50 - 90	165 - 295 50 - 90					
		130 - 195 40 - 60	130 - 195 40 - 60					
	130 - 195 40 - 60				655 - 985 200 - 300			
	100 - 165 30 - 50				560 - 885 170 - 270			
	80 - 130 25 - 40				460 - 720 140 - 220	655 - 985 200 - 300		
	50 - 80 15 - 25				360 - 560 110 - 170	490 - 820 150 - 250		
						460 - 720 140 - 220		
					165 - 230 50 - 70			
	195 - 330 60 - 100	460 - 720 140 - 220	460 - 720 140 - 220		330 - 525 100 - 160	425 - 625 130 - 190		
	195 - 330 60 - 100	360 - 560 110 - 170	360 - 560 110 - 170		330 - 525 100 - 160	425 - 625 130 - 190		
						195 - 260 60 - 80		
						165 - 295 50 - 90		

TABLE FORMAT

655
200

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Suggested cutting speed (inch)
Suggested cutting speed (metric)

D

Material			Material group	Hardness Brinell (HB)	Tensile Strength R _m [N/mm²]	Example Material SAE, DIN	
S	Heat resistant alloy (Fe)	annealed	S1.1	200	670		
		hardened	S1.2	275	930		
	Heat resistant alloy (Ni, Co)	annealed	S2.1	250	840	Inconel 600	
		hardened	S2.2	350	1200	Inconel 713	
	Titanium	Titanium alloy α	S3.1	120	240	Grade 1-2 Ti, Ti99,7	
		Titanium alloy α- β	S3.2	360	1200	Grade 5 Ti, Ti6Al4V	
		Titanium alloy β	S3.3	410	1400	Ti-10-2-3, Ti-10V-2Fe-3Al	
H	Hardened steels	50-55 HRC	H1.1	-	-		
		55-60 HRC	H1.2	-	-		
		60-63 HRC	H1.3	-	-		
		> 63HRC	H1.4	-	-		
O	Thermoplastics		O1.1				
	Thermosets		O1.2				
	Plastics - glass fiber reinforced	GFK	O1.3				
	Plastics - carbon fiber reinforced	CFK	O1.4				

TABLE FORMAT

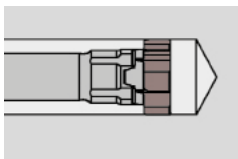
655	=	Suggested cutting speed (inch)
200		Suggested cutting speed (metric)

Cutting speed vc (m/min) / Start values with IC								
	MG10	HL3H	AN2H AN4H	AD3H AD4H	DT2H	NP1H	H20	
		80 - 130 25 - 40						
		80 - 115 25 - 35						
		45 - 70 14 - 22						
		40 - 60 12 - 18						
		80 - 130 25 - 40						
		65 - 100 20 - 30						
		45 - 70 14 - 22						
				65 - 100 20 - 30				
				40 - 60 12 - 18				
				25 - 40 8 - 12				
				20 - 35 6 - 10				
	165 - 230 50 - 70				165 - 230 50 - 70		165 - 230 50 - 70	
	130 - 195 40 - 60				130 - 195 40 - 60		130 - 195 40 - 60	
						130 - 195 40 - 60		
						130 - 195 40 - 60		

TABLE FORMAT

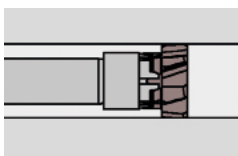
655	=	Suggested cutting speed (inch)
200		Suggested cutting speed (metric)

For blind holes without cutting interruption, used by IC



Material group	Cutting material	Geometry	Flutes	
			G= straight L=left helical	
P1	HL3H	A7	G	
P2.1 - P2.2	HL3H	A1	G	
P2.3 - P3.2	HL3H	A6	G	
P4	HL3H	A1	G	
P5	HL3H	A7	G	
M	HL3H	A7	G	
K	HL3H	A1	G	
N1	DT2H	A7	G	
N2	NP1H	A7	G	
N3	DT2H	A7	G	
N4	NP1H	A7	G	
S	HL3H	A7	G	
H	AD3H	A6	G	
O	DT2H	A7	G	

For Throung Holes without Cutting Interruption, used by IC

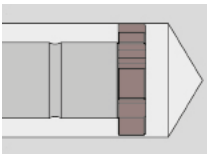


Material group	Cutting material	Geometry	Flutes	
			G= straight L=left helical	
P1	HL3H	B7	L	
P2.1 - P2.2	HL3H	B1	L	
P2.3 - P3.2	HL3H	B6	L	
P4	HL3H	B1	L	
P5	HL3H	B7	L	
M	HL3H	B7	L	
K	HL3H	A1	G	
N1	DT2H	B7	L	
N2	NP1H	B7	L	
N3	DT2H	A7	G	
N4	NP1H	A7	G	
S	HL3H	A7	L	
H	AD3H	A6	G	
O	DT2H	A7	L	

	DR08 Ø7.6 - 8.1 mm		DR10 Ø8.101 - 9.6 mm		DR11 Ø9.601 - 11.1 mm		DR13 Ø11.101 - 13.1 mm	
	ap	fz	ap	fz	ap	fz	ap	fz
	0.04 - 0.07	0.07 - 0.14	0.05 - 0.08	0.08 - 0.16	0.05 - 0.10	0.10 - 0.18	0.05 - 0.10	0.10 - 0.20
	0.04 - 0.07	0.06 - 0.12	0.05 - 0.08	0.07 - 0.14	0.05 - 0.10	0.08 - 0.16	0.05 - 0.10	0.09 - 0.18
	0.03 - 0.06	0.05 - 0.08	0.04 - 0.08	0.06 - 0.10	0.05 - 0.10	0.08 - 0.12	0.05 - 0.10	0.08 - 0.14
	0.04 - 0.07	0.07 - 0.14	0.05 - 0.08	0.08 - 0.16	0.05 - 0.10	0.10 - 0.18	0.05 - 0.10	0.10 - 0.20
	0.04 - 0.07	0.07 - 0.14	0.05 - 0.08	0.08 - 0.16	0.05 - 0.10	0.10 - 0.18	0.05 - 0.10	0.10 - 0.20
	0.04 - 0.07	0.06 - 0.08	0.05 - 0.08	0.07 - 0.09	0.05 - 0.08	0.08 - 0.10	0.05 - 0.10	0.09 - 0.11
	0.04 - 0.10	0.07 - 0.18	0.05 - 0.10	0.08 - 0.20	0.05 - 0.15	0.10 - 0.22	0.05 - 0.15	0.12 - 0.25
	0.05 - 0.10	0.06 - 0.15	0.05 - 0.12	0.08 - 0.18	0.08 - 0.15	0.1 - 0.22	0.10 - 0.20	0.12 - 0.25
	0.05 - 0.10	0.05 - 0.12	0.05 - 0.12	0.06 - 0.14	0.06 - 0.15	0.08 - 0.18	0.06 - 0.15	0.1 - 0.20
	0.04 - 0.10	0.07 - 0.14	0.04 - 0.10	0.08 - 0.18	0.05 - 0.10	0.08 - 0.20	0.05 - 0.10	0.1 - 0.20
	0.06 - 0.08	0.08 - 0.12	0.08 - 0.10	0.10 - 0.16	0.08 - 0.10	0.14 - 0.18	0.08 - 0.10	0.14 - 0.18
	0.03 - 0.05	0.05 - 0.08	0.03 - 0.06	0.05 - 0.08	0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.05 - 0.12
	0.01 - 0.03	0.02 - 0.06	0.01 - 0.04	0.02 - 0.06	0.01 - 0.05	0.02 - 0.08	0.01 - 0.05	0.02 - 0.08
	0.05 - 0.08	0.06 - 0.12	0.05 - 0.08	0.06 - 0.12	0.08 - 0.12	0.06 - 0.12	0.08 - 0.12	0.06 - 0.12

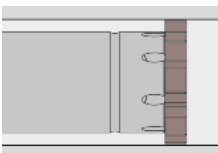
	DR08 Ø7.6 - 8.1 mm		DR10 Ø8.101 - 9.6 mm		DR11 Ø9.601 - 11.1 mm		DR13 Ø11.101 - 13.1 mm	
	ap	fz	ap	fz	ap	fz	ap	fz
	0.04 - 0.07	0.08 - 0.16	0.05 - 0.08	0.09 - 0.18	0.05 - 0.10	0.11 - 0.20	0.05 - 0.10	0.12 - 0.22
	0.04 - 0.07	0.07 - 0.13	0.05 - 0.08	0.08 - 0.16	0.05 - 0.10	0.09 - 0.18	0.05 - 0.10	0.10 - 0.20
	0.03 - 0.06	0.06 - 0.09	0.04 - 0.08	0.07 - 0.11	0.05 - 0.10	0.09 - 0.13	0.05 - 0.10	0.09 - 0.16
	0.04 - 0.07	0.08 - 0.16	0.05 - 0.08	0.09 - 0.18	0.05 - 0.10	0.11 - 0.18	0.05 - 0.10	0.12 - 0.22
	0.04 - 0.07	0.08 - 0.16	0.05 - 0.08	0.09 - 0.18	0.05 - 0.10	0.11 - 0.20	0.05 - 0.10	0.11 - 0.22
	0.04 - 0.07	0.07 - 0.09	0.05 - 0.08	0.08 - 0.10	0.05 - 0.08	0.09 - 0.11	0.05 - 0.10	0.10 - 0.12
	0.04 - 0.10	0.07 - 0.18	0.05 - 0.10	0.08 - 0.20	0.05 - 0.15	0.10 - 0.22	0.05 - 0.15	0.12 - 0.25
	0.05 - 0.10	0.07 - 0.17	0.05 - 0.12	0.09 - 0.20	0.08 - 0.15	0.11 - 0.25	0.10 - 0.20	0.13 - 0.28
	0.05 - 0.10	0.06 - 0.13	0.05 - 0.12	0.07 - 0.16	0.06 - 0.15	0.09 - 0.20	0.06 - 0.15	0.11 - 0.22
	0.04 - 0.10	0.08 - 0.16	0.04 - 0.10	0.09 - 0.20	0.05 - 0.10	0.09 - 0.22	0.05 - 0.10	0.1 - 0.20
	0.06 - 0.08	0.09 - 0.13	0.08 - 0.10	0.11 - 0.18	0.08 - 0.10	0.16 - 0.20	0.08 - 0.10	0.16 - 0.20
	0.03 - 0.05	0.06 - 0.09	0.03 - 0.06	0.05 - 0.08	0.04 - 0.08	0.05 - 0.10	0.05 - 0.10	0.05 - 0.12
	0.01 - 0.03	0.02 - 0.06	0.01 - 0.04	0.02 - 0.06	0.01 - 0.05	0.02 - 0.08	0.01 - 0.05	0.02 - 0.08
	0.05 - 0.08	0.06 - 0.12	0.05 - 0.08	0.06 - 0.12	0.08 - 0.12	0.06 - 0.12	0.08 - 0.12	0.06 - 0.12

For blind holes without cutting interruption, used by IC



Material group	Cutting material	Geometry	Flutes	
			G= straight L=left helical	
P1	HL3H	A7	G	
P2.1 - P2.2	HL3H	A1	G	
P2.3 - P3.2	HL3H	A6	G	
P4	HL3H	A1	G	
P5	HL3H	A7	G	
M	HL3H	A7	G	
K	HL3H	A1	G	
N1	DT2H	A7	G	
N2	NP1H	A7	G	
N3	DT2H	A7	G	
N4	NP1H	A7	G	
S	HL3H	A7	G	
H	AD3H	A6	G	
O	DT2H	A7	G	

For Through Holes without Cutting Interruption, used by IC

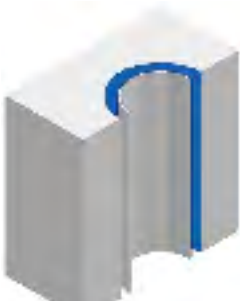
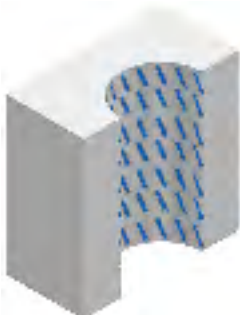


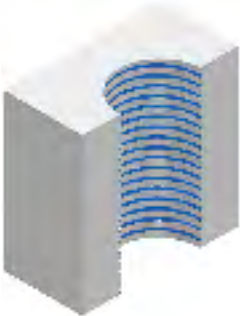
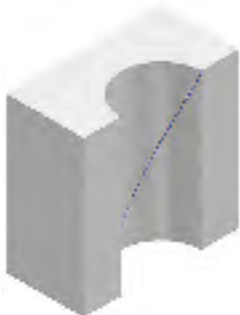
Material group	Cutting material	Geometry	Flutes	
			G= straight L=left helical	
P1	HL3H	B7	L	
P2.1 - P2.2	HL3H	B1	L	
P2.3 - P3.2	HL3H	B6	L	
P4	HL3H	B1	L	
P5	HL3H	B7	L	
M	HL3H	B7	L	
K	HL3H	A1	G	
N1	DT2H	B7	L	
N2	NP1H	B7	L	
N3	DT2H	A7	G	
N4	NP1H	A7	G	
S	HL3H	A7	L	
H	AD3H	A6	G	
O	DT2H	A7	L	

	DR016 Ø11.9 - 15.6 mm		DR019 - DR024 Ø15.601 - 23.6 mm		DR029 - DR036 Ø23.601 - 35.6 mm		DR044 - DR141 Ø35.601 - 140.6 mm	
	ap	fz	ap	fz	ap	fz	ap	fz
	0.04 - 0.10	0.07 - 0.18	0.06 - 0.12	0.10 - 0.20	0.08 - 0.15	0.12 - 0.20	0.10 - 0.18	0.12 - 0.20
	0.04 - 0.10	0.06 - 0.14	0.06 - 0.12	0.09 - 0.18	0.08 - 0.15	0.11 - 0.18	0.10 - 0.18	0.11 - 0.18
	0.03 - 0.08	0.05 - 0.12	0.04 - 0.10	0.08 - 0.14	0.05 - 0.12	0.10 - 0.14	0.10 - 0.15	0.10 - 0.14
	0.04 - 0.10	0.07 - 0.18	0.05 - 0.12	0.10 - 0.20	0.07 - 0.15	0.12 - 0.20	0.10 - 0.18	0.12 - 0.20
	0.04 - 0.10	0.07 - 0.18	0.05 - 0.12	0.10 - 0.20	0.06 - 0.13	0.12 - 0.20	0.07 - 0.15	0.12 - 0.20
	0.03 - 0.08	0.06 - 0.14	0.04 - 0.10	0.08 - 0.16	0.05 - 0.12	0.10 - 0.16	0.06 - 0.12	0.10 - 0.16
	0.06 - 0.15	0.10 - 0.25	0.10 - 0.20	0.12 - 0.25	0.10 - 0.25	0.12 - 0.25	0.12 - 0.25	0.12 - 0.25
	0.06 - 0.12	0.08 - 0.22	0.1 - 0.15	0.12 - 0.25	0.12 - 0.18	0.14 - 0.25	0.12 - 0.20	0.14 - 0.25
	0.06 - 0.12	0.07 - 0.18	0.1 - 0.15	0.10 - 0.20	0.12 - 0.18	0.12 - 0.20	0.12 - 0.20	0.12 - 0.20
	0.03 - 0.10	0.10 - 0.20	0.04 - 0.12	0.10 - 0.20	0.05 - 0.15	0.12 - 0.20	0.08 - 0.18	0.12 - 0.20
	0.05 - 0.10	0.12 - 0.18	0.06 - 0.12	0.14 - 0.18	0.08 - 0.14	0.14 - 0.18	0.10 - 0.18	0.14 - 0.18
	0.03 - 0.05	0.05 - 0.12	0.03 - 0.08	0.05 - 0.12	0.04 - 0.10	0.06 - 0.12	0.05 - 0.12	0.06 - 0.12
	0.01 - 0.03	0.02 - 0.08	0.01 - 0.04	0.02 - 0.08	0.02 - 0.05	0.02 - 0.08	0.02 - 0.05	0.02 - 0.08
	0.05 - 0.08	0.05 - 0.12	0.06 - 0.10	0.06 - 0.12	0.08 - 0.12	0.06 - 0.12	0.10 - 0.15	0.06 - 0.12

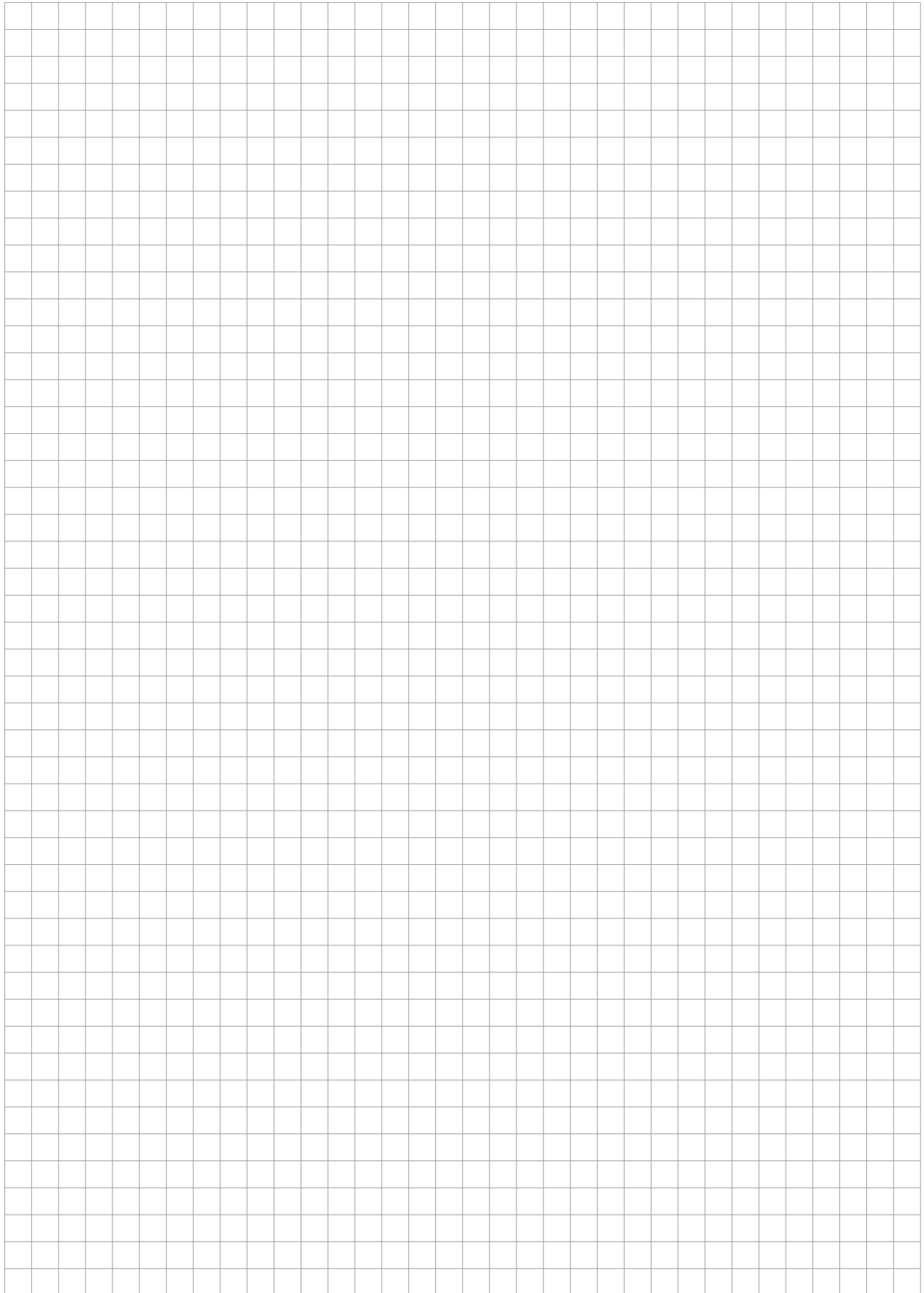
	DR016 Ø11.9 - 15.6 mm		DR019 - DR024 Ø15.601 - 23.6 mm		DR029 - DR036 Ø23.601 - 35.6 mm		DR044 - DR141 Ø35.601 - 140.6 mm	
	ap	fz	ap	fz	ap	fz	ap	fz
	0.04 - 0.10	0.08 - 0.20	0.06 - 0.12	0.11 - 0.22	0.08 - 0.15	0.14 - 0.22	0.10 - 0.18	0.14 - 0.22
	0.04 - 0.10	0.07 - 0.18	0.06 - 0.12	0.10 - 0.20	0.08 - 0.15	0.12 - 0.20	0.10 - 0.18	0.12 - 0.20
	0.03 - 0.08	0.06 - 0.14	0.04 - 0.10	0.09 - 0.16	0.05 - 0.12	0.11 - 0.16	0.10 - 0.15	0.11 - 0.16
	0.04 - 0.10	0.08 - 0.20	0.05 - 0.12	0.11 - 0.22	0.07 - 0.15	0.14 - 0.22	0.10 - 0.18	0.14 - 0.22
	0.04 - 0.10	0.08 - 0.20	0.05 - 0.12	0.11 - 0.22	0.06 - 0.13	0.14 - 0.22	0.07 - 0.15	0.14 - 0.22
	0.03 - 0.08	0.07 - 0.14	0.04 - 0.10	0.09 - 0.18	0.05 - 0.12	0.11 - 0.18	0.06 - 0.12	0.11 - 0.18
	0.06 - 0.15	0.10 - 0.25	0.10 - 0.20	0.12 - 0.25	0.10 - 0.25	0.12 - 0.25	0.12 - 0.25	0.12 - 0.25
	0.06 - 0.12	0.10 - 0.25	0.1 - 0.15	0.15 - 0.30	0.12 - 0.18	0.16 - 0.30	0.12 - 0.20	0.16 - 0.30
	0.06 - 0.12	0.10 - 0.20	0.1 - 0.15	0.11 - 0.22	0.12 - 0.18	0.14 - 0.22	0.12 - 0.20	0.14 - 0.22
	0.03 - 0.10	0.10 - 0.20	0.04 - 0.12	0.10 - 0.20	0.05 - 0.15	0.12 - 0.20	0.08 - 0.18	0.12 - 0.20
	0.05 - 0.10	0.12 - 0.18	0.06 - 0.12	0.16 - 0.20	0.08 - 0.14	0.16 - 0.20	0.10 - 0.18	0.16 - 0.20
	0.03 - 0.05	0.05 - 0.12	0.03 - 0.08	0.06 - 0.14	0.04 - 0.10	0.07 - 0.14	0.05 - 0.12	0.07 - 0.14
	0.01 - 0.03	0.02 - 0.08	0.01 - 0.04	0.02 - 0.08	0.02 - 0.05	0.02 - 0.08	0.02 - 0.05	0.02 - 0.08
	0.05 - 0.08	0.05 - 0.12	0.06 - 0.10	0.06 - 0.12	0.08 - 0.12	0.06 - 0.12	0.10 - 0.15	0.06 - 0.12

D

Problem	Solution
Hole too large 	1. Reduce runout error and use compensation holder 2. Reduce cutting speed 3. Increase feed rate, increase coolant mix 4. Reduce depth of cut 5. Check tool wear (especiall build-up edges) 6. Control reamer-$\emptyset$
Tapered hole 	1. Reduce runout error and use compensation holder 2. Reduce cutting speed and feed, check coolant mix 3. Improve pre-machining 4. Improve workpiece clamping 5. Measure bore in clamped and unclamped condition 6. Check chip flow
Hole shows chatter marks 	1. Reduce runout error and use compensation holder 2. Change chamfer angle 3. Improve workpiece clamping 4. Reduce cutting speed 5. Increase feed rate

Problem	Solution
Poor surface quality 	1. Check insert wear 2. Reduce runout error and use compensation holder, check cutting data 3. Use tool with internal coolant supply 4. Increase coolant mix
Retention marks in hole 	1. Reduce runout error and use compensation holder 2. Check insert wear (build-up edges) 3. Reduce depth of cut 4. Use a sharper geometry 5. Reduce pull back feed
Reamer jams 	1. Reduce coolant mix 2. Increase depth of cut 3. Check insert wear 4. Change chamfer angle
Hole too small 	1. Change insert 2. Reduce coolant mix 3. Increase depth of cut 4. Increase cutting speed 5. Reduce feed rate

D



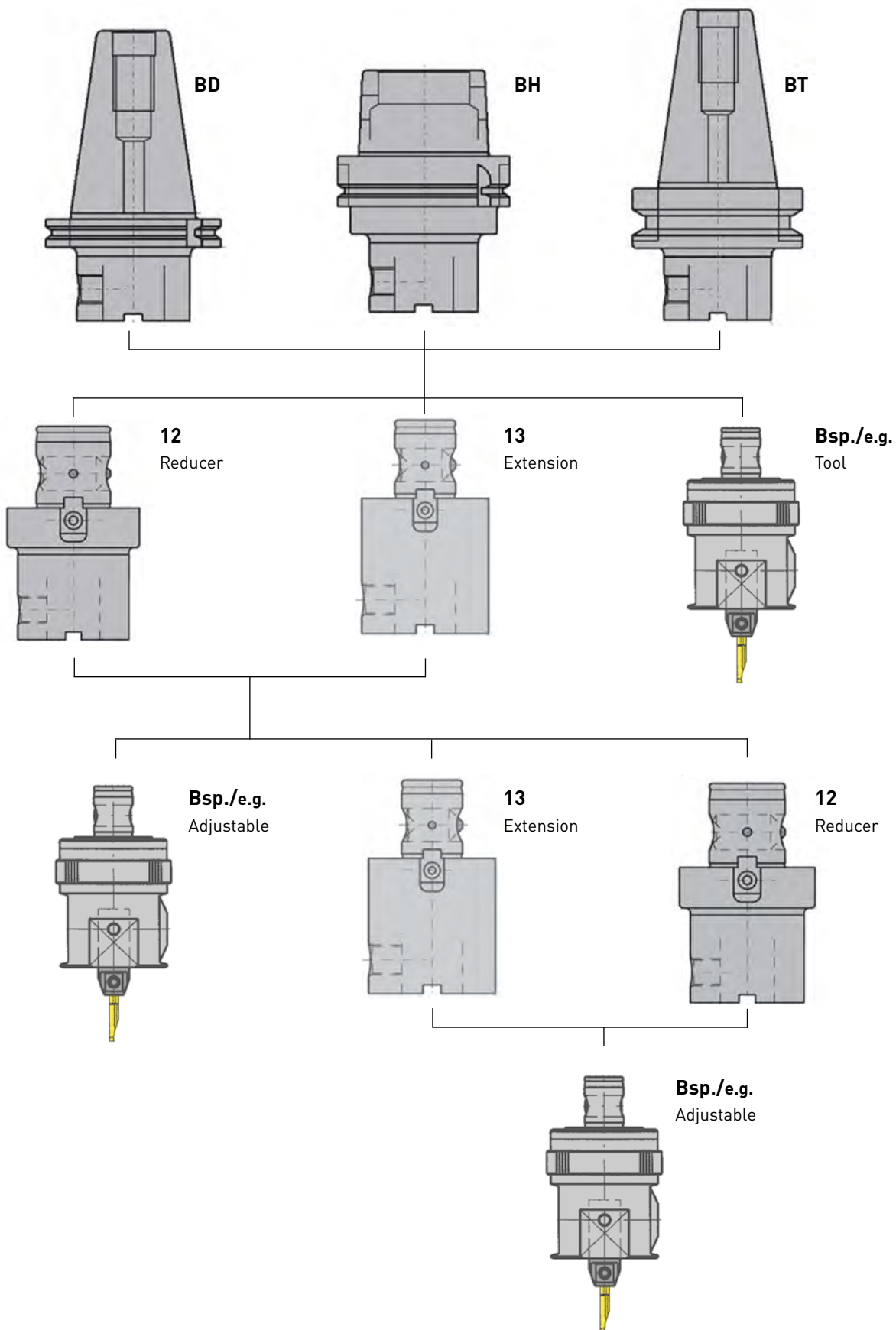


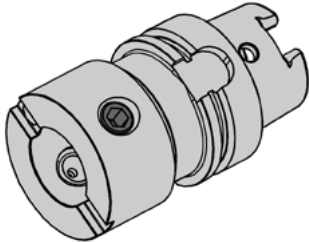
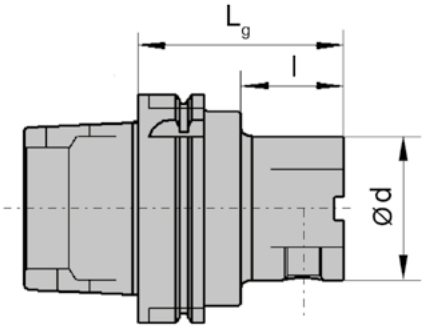
E

URMA ADAPTORS

SYSTEMS BD, BH, BT

System Adaptors

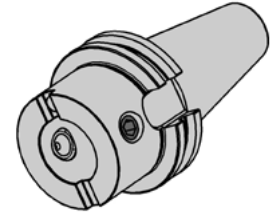
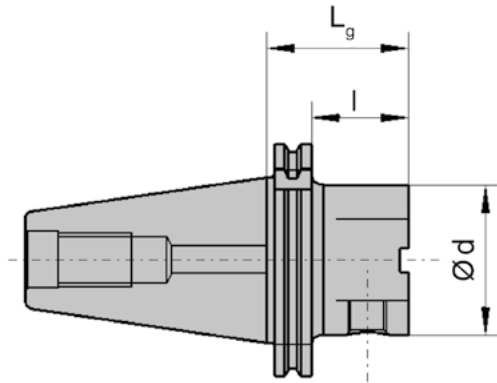




Part number	Lg	l	d	Beta-Modul	Weight [kg]	System
BH10 63A 25 055	55	29	25	25	.9	HSK-A 63
BH10 63A 32 060	60	34	32	32	1	HSK-A 63
BH10 63A 40 065	65	23	42	40	1.1	HSK-A 63
BH10 63A 50 070	70	28	50	50	1.5	HSK-A 63
BH10 63A 63 080	80	-	63	63	1.5	HSK-A 63
BH10 100A 32 060	60	31	32	32	2.3	HSK-A 100
BH10 100A 40 080	80	35	42	40	3.1	HSK-A 100
BH10 100A 50 080	80	35	50	50	3.2	HSK-A 100
BH10 100A 63 080	80	35	63	63	3.3	HSK-A 100
BH10 100A 80 090	90	45	80	80	4	HSK-A 100
BH10 100A 100 100	100	-	100	100	5	HSK-A 100

Coolant tube is not included - separate order required! See the Additional Equipment chapter.

Dimensions in mm



E

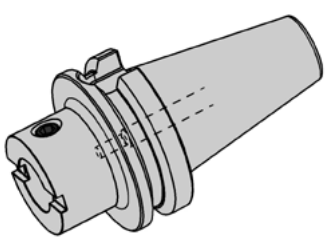
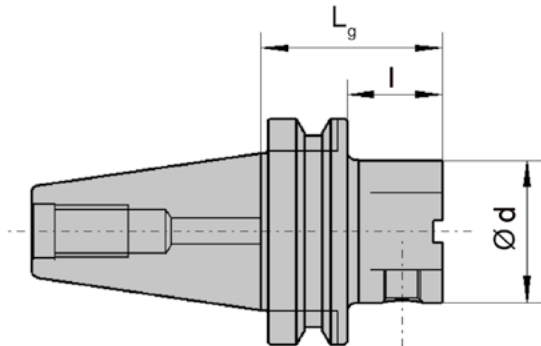
Part number	Lg	l	d	Beta-Modul	Weight [kg]	System
BD10 40A 25 050	50	31	25	25	.8	SK 40
BD10 40A 32 050	50	31	32	32	.9	SK 40
BD10 40A 40 035	35	16	42	40	.9	SK 40
BD10 40A 40 050	50	31	42	40	1.1	SK 40
BD10 40A 50 050	50	31	50	50	1.2	SK 40
BD10 40A 63 065	65	46	63	63	1.5	SK 40
BD10 50A 25 060	60	41	25	25	2.8	SK 50
BD10 50A 32 060	60	41	32	32	2.9	SK 50
BD10 50A 40 060	60	41	42	40	3	SK 50
BD10 50A 50 060	60	41	50	50	3.2	SK 50
BD10 50A 63 060	60	41	63	63	3.3	SK 50
BD10 50A 80 070	70	51	80	80	4	SK 50
BD10 50A 100 115	115	96	50	100	6.9	SK 50

Dimensions in mm

JIS-BT



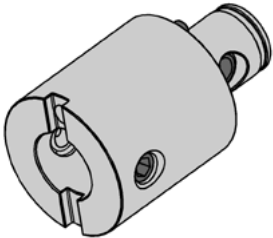
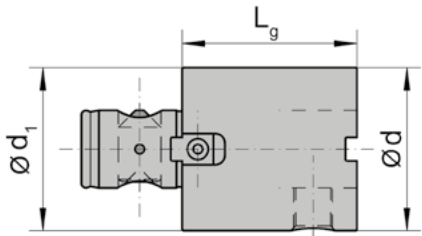
Beta-Modul



Part number	Lg	l	d	Beta-Modul	Weight [kg]	System
BT10 40A 25 060	60	33	25	25	.8	JIS-BT 40
BT10 40A 32 060	60	33	32	32	.9	JIS-BT 40
BT10 40A 40 028	28	1	42	40	.9	JIS-BT 40
BT10 40A 40 060	60	33	42	40	1.2	JIS-BT 40
BT10 40A 50 060	60	33	50	50	1.3	JIS-BT 40
BT10 40A 63 055	55	28	63	63	1.4	JIS-BT 40
BT10 50A 32 070	70	32	32	32	3.7	JIS-BT 50
BT10 50A 40 070	70	32	42	40	3.9	JIS-BT 50
BT10 50A 50 070	70	32	50	50	4.1	JIS-BT 50
BT10 50A 63 080	80	42	63	63	4.3	JIS-BT 50
BT10 50A 80 100	100	62	80	80	5.5	JIS-BT 50
BT10 50A 100 100	110	72	100	100	7	JIS-BT 50

Dimensions in mm

E

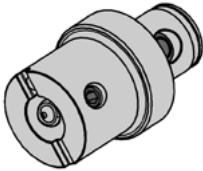
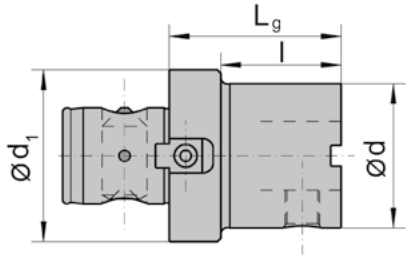


E

Part number	Lg	d	d ₁	Beta-Modul MS	Beta-Modul WS	Weight [kg]
B13 25 25 045	45	25	25	25	25	.2
B13 25 25 070	70	25	25	25	25	.3
B13 32 32 035	35	32	32	32	32	.2
B13 32 32 070	70	32	32	32	32	.4
B13 40 40 045	45	42	42	40	40	.4
B13 40 40 070	70	42	42	40	40	.7
B13 50 50 065	65	50	50	50	50	1
B13 50 50 100	100	50	50	50	50	1.5
B13 63 63 060	60	63	63	63	63	1.3
B13 63 63 125	125	63	63	63	63	2.9

Dimensions in mm

Beta-Modul



E

Part number	Lg	l	d	d ₁	Beta-Modul MS	Beta-Modul WS	Weight [kg]
B12 32 25 040	40	25	25	32	32	25	.2
B12 40 25 040	40	25	25	42	40	25	.3
B12 40 32 045	45	30	32	42	40	32	.3
B12 50 40 050	50	35	42	50	50	40	.5
B12 63 25 045	45	25	25	63	63	25	.7
B12 63 32 050	50	30	32	63	63	32	.9
B12 63 40 055	55	35	42	63	63	40	1.1

Dimensions in mm



HYDRAULIC HOLDERS

SYSTEM HD



HDC

Slim Design - "The Original"

"The original" in a slim design according to DIN.

Versatile toolholder for milling, drilling, countersinking, thread milling, and high-speed machining.

Highly versatile for a wide range of applications
Runout and repeatability < 0.003 mm
Excellent vibration damping
Flexible clamping range through intermediate sleeves
Axial length presetting
Precision balanced as standard



HDE

Robust Short Design

Robust, short design for heavy-duty machining, drilling, reaming, and thread milling.

High torque transmission: up to 900 Nm at Ø 20 mm under dry clamping conditions; 520 Nm with an oil-contaminated tool shank
Excellent price-performance ratio
Runout and repeatability < 0.003 mm
Axial length presetting



HDS4X

Slim Design for Axial Machining

Slim design, particularly suitable for axial machining. Outer dimensions correspond to heat-shrink chucks according to DIN 69882-8.

Not for use in shrink-fit machines
Slim design
Available in short and long versions
Excellent vibration damping
Axial length presetting



HDR

HDR — Hydraulic Expansion Chuck

Micron-precision hydraulic expansion chuck for applications requiring extremely tight runout tolerances.

The HDR hydraulic expansion chuck is designed for drilling, reaming, and other operations where maximum concentricity is required. Even minimal runout errors in the tool, spindle, or mounting interface can be individually compensated.

Runout adjustable to 0 μm
Easy handling
Excellent vibration damping



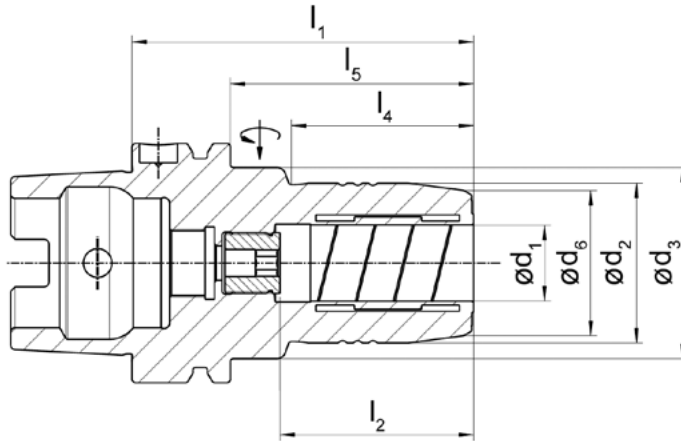
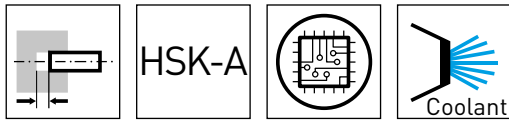
HDRK

HDRK — Extra-Short Hydraulic Expansion Chuck

Extra-short version of the HDR hydraulic expansion chuck with circular runout adjustment. The compact design is achieved by eliminating axial length adjustment.

The HSK-C63 version also contributes to the reduced overall length. An ideal solution where installation space is limited or unfavorable vibration conditions exist.

Runout adjustable to 0 μm
Easy handling
Excellent vibration damping
Without axial length adjustment

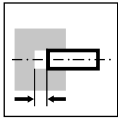


F

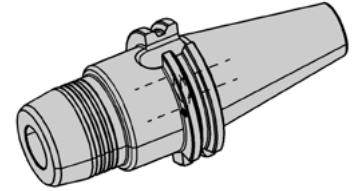
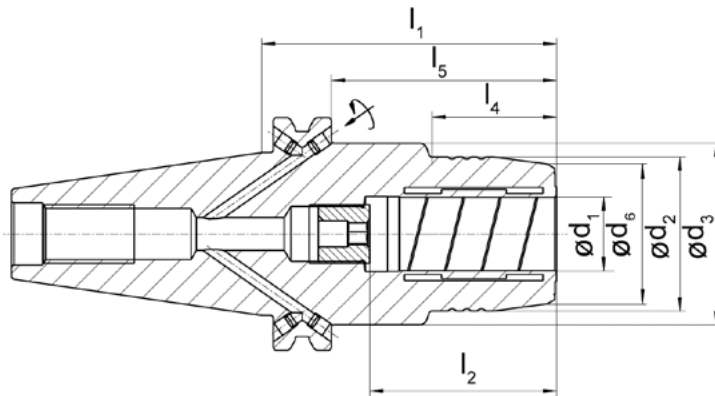
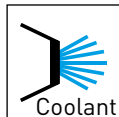
Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDC.HSKA050.06.070	6	26	40	22	70	37	28	44	0.7	16	HSK-A 50
HDC.HSKA050.08.070	8	28	40	24	70	37	28	44	0.7	23	HSK-A 50
HDC.HSKA050.10.075	10	30	40	26	75	41	34	49	0.7	45	HSK-A 50
HDC.HSKA050.12.085	12	32	40	28	85	46	44	59	0.8	90	HSK-A 50
HDC.HSKA050.16.090	16	38	53	34	90	49	30	64	1.1	185	HSK-A 50
HDC.HSKA050.20.090	20	42	60	38	90	51	29	64	1.1	330	HSK-A 50
HDC.HSKA063.06.070	6	26	50	22	70	37	24	44	1	16	HSK-A 63
HDC.HSKA063.08.070	8	28	50	24	70	37	25	44	1	23	HSK-A 63
HDC.HSKA063.10.080	10	30	50	26	80	41	35	54	1.1	45	HSK-A 63
HDC.HSKA063.12.085	12	32	50	28	85	46	40	59	1.1	90	HSK-A 63
HDC.HSKA063.16.090	16	38	50	34	90	49	46	64	1.2	185	HSK-A 63
HDC.HSKA063.20.090	20	42	50	38	90	51	48	64	1.3	330	HSK-A 63
HDC.HSKA063.25.120	25	57	63	51	120	57	-	94	2.2	400	HSK-A 63
HDC.HSKA100.06.075	6	26	50	22	75	37	26	46	2.5	16	HSK-A 100
HDC.HSKA100.08.075	8	28	50	24	75	37	26	46	2.5	23	HSK-A 100
HDC.HSKA100.10.090	10	30	50	26	90	41	42	61	2.5	45	HSK-A 100
HDC.HSKA100.12.095	12	32	50	28	95	46	47	66	2.6	90	HSK-A 100
HDC.HSKA100.16.100	16	38	50	34	100	49	53	71	2.7	185	HSK-A 100
HDC.HSKA100.20.105	20	42	50	38	105	51	59	76	2.8	330	HSK-A 100
HDC.HSKA100.25.110	25	57	63	51	110	57	62.5	81	3.7	400	HSK-A 100

Coolant tube is not included - separate order required! Chapter Additional Equipment.

Dimensions in mm

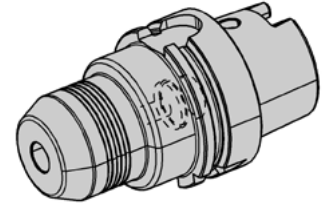
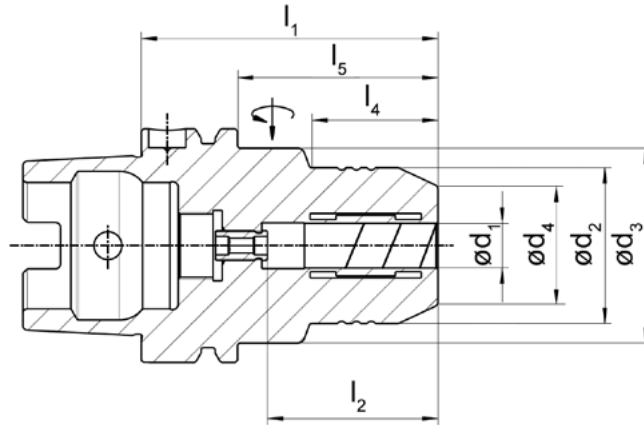
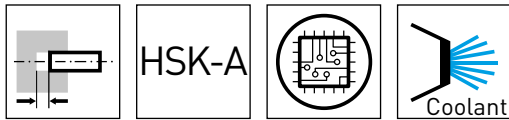


SK-AB



Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDC.SK40.06.080	6	26	49.5	22	80.5	37	29.5	61.5	1.4	16	SK 40
HDC.SK40.08.080	8	28	49.5	24	80.5	37	30	61.5	1.4	23	SK 40
HDC.SK40.10.080	10	30	49.5	26	80.5	41	31	61.5	1.4	45	SK 40
HDC.SK40.12.080	12	32	49.5	28	80.5	46	31.5	61.5	1.4	90	SK 40
HDC.SK40.16.080	16	38	49.5	34	80.5	49	33	61.5	1.4	185	SK 40
HDC.SK40.20.080	20	42	49.5	38	80.5	51	34	61.5	1.4	330	SK 40
HDC.SK40.25.080	25	55	66	53	80.5	57	22	61.5	1.8	330	SK 40
HDC.SK50.20.080	20	42	49.5	38	80.5	51	34	61.5	3.3	330	SK 50

Dimensions in mm

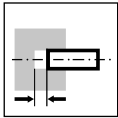


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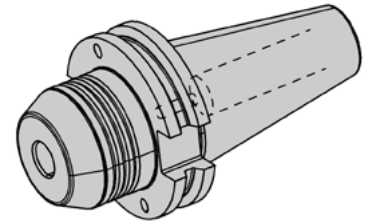
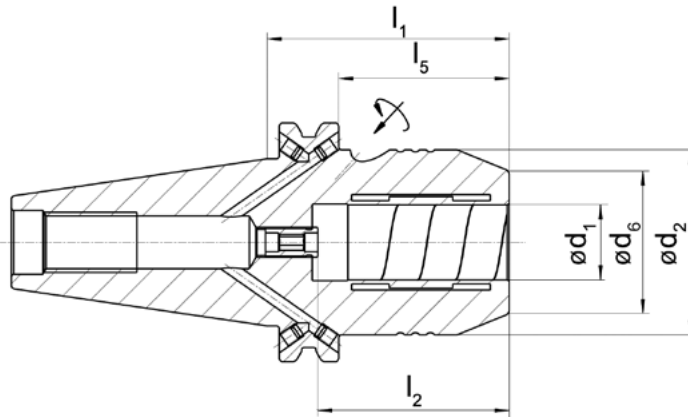
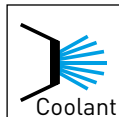
Part number	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDE.HSKA063.12.080	12	42	52.5	32	80	46	34	54	1.25	110	HSK-A 63
HDE.HSKA063.16.080	16	53	-	38	80	51	-	54	1.3	350	HSK-A 63
HDE.HSKA063.20.080	20	52.5	-	38	80	51	-	54	1.32	520	HSK-A 63
HDE.HSKA100.20.090	20	52.5	-	38	90	51	-	54	2.8	520	HSK-A 100
HDE.HSKA100.32.100	32	72	-	58.5	100	61	-	71.05	3.8	900	HSK-A 100

Coolant tube is not included - separate order required

Dimensions in mm

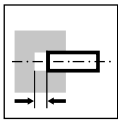


SK-AB

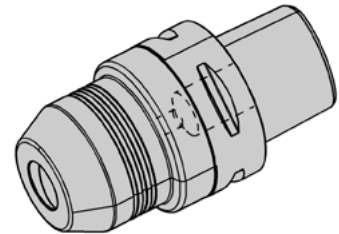
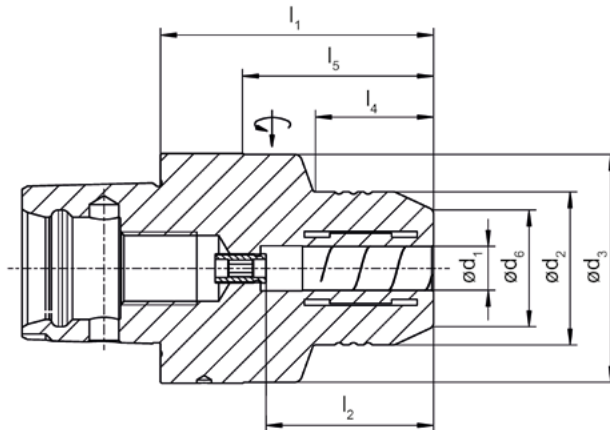
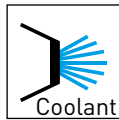


Part number	d ₁	d ₂	d ₆	l ₁	l ₂	l ₅	Weight [kg]	M _{min} [Nm]	System
HDE.SK40.12.050	12	42	32	50	46	31	1.1	110	SK 40
HDE.SK40.16.064	16	49.25	38	64.5	51	45.45	1.2	350	SK 40
HDE.SK40.20.064	20	49.25	38	64.5	51	45.5	1.3	520	SK 40
HDE.SK50.12.050	12	42	32	50	46	31	2.8	110	SK 50
HDE.SK50.20.064	20	49.25	38	64.5	51	45.5	3.1	520	SK 50
HDE.SK50.32.081	32	72	58.5	81	61	62	4.1	900	SK 50

Dimensions in mm



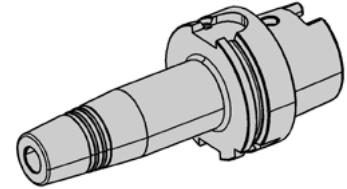
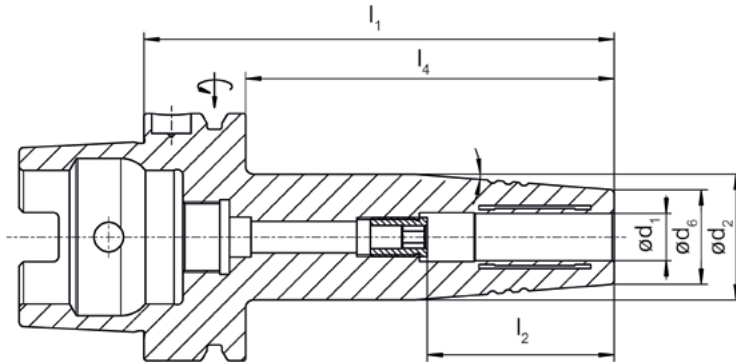
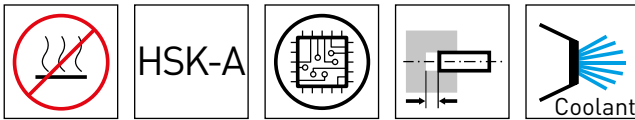
PSC



F

Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDE.C4.12.065	12	39.5	39.5	32	65	46	-	44	0.65	110	PSC 40
HDE.C4.20.083	20	45.5	45.5	38	83	51	-	62.4	0.85	440	PSC 40
HDE.C5.12.070	12	42	49.5	32	70	46	33	50	0.9	110	PSC 50
HDE.C5.20.075	20	49.5	49.5	38	75	51	-	54	1	440	PSC 50
HDE.C6.12.075	12	42	62.5	32	75	46	33	53	1.5	110	PSC 63
HDE.C6.20.080	20	52.5	62.5	38	80	51	41	57.4	1.6	440	PSC 63
HDE.C6.32.090	32	62.5	62.5	58.5	90	61	-	67	1.95	800	PSC 63

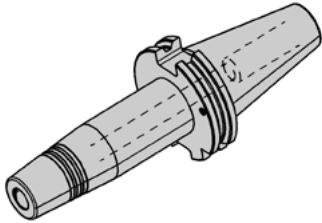
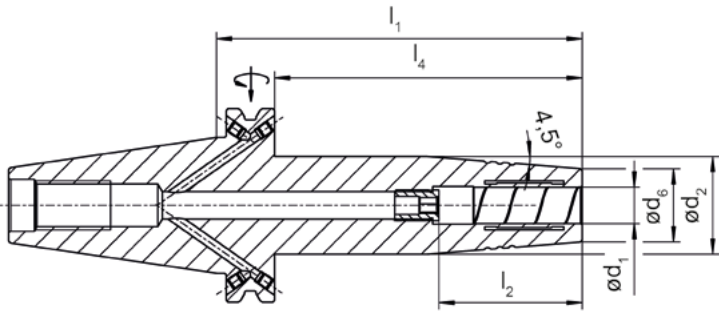
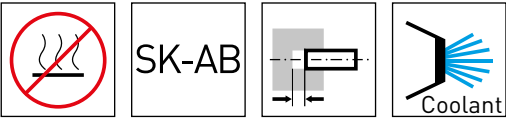
Dimensions in mm



Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₄	Weight [kg]	M _{min} [Nm]	System
HDS4X.HSKA063.06.080	6	27	27	21	80	38.2	54	0.9	16	HSK-A 63
HDS4X.HSKA063.06.120	6	27	27	21	120	38.2	94	1	16	HSK-A 63
HDS4X.HSKA063.08.080	8	27	27	21	80	38.2	54	0.9	23	HSK-A 63
HDS4X.HSKA063.08.120	8	27	27	21	120	38.2	94	1	23	HSK-A 63
HDS4X.HSKA063.10.085	10	32	32	24	85	42.7	59	0.9	45	HSK-A 63
HDS4X.HSKA063.10.120	10	32	32	24	120	43.2	94	1.1	45	HSK-A 63
HDS4X.HSKA063.12.090	12	32	32	24	90	47.7	64	0.9	90	HSK-A 63
HDS4X.HSKA063.12.120	12	32	32	24	120	47.7	94	1.1	90	HSK-A 63
HDS4X.HSKA063.14.090	14	34	34	27	90	48.7	64	1	110	HSK-A 63
HDS4X.HSKA063.14.120	14	34	34	27	120	48.7	94	1.2	110	HSK-A 63
HDS4X.HSKA063.16.095	16	34	34	27	95	53.2	69	1	185	HSK-A 63
HDS4X.HSKA063.16.120	16	34	34	27	120	53.2	94	1.2	185	HSK-A 63
HDS4X.HSKA063.20.100	20	42	42	33	100	55.7	74	1.2	330	HSK-A 63
HDS4X.HSKA063.20.120	20	42	42	33	120	55.7	94	1.4	330	HSK-A 63

Coolant tube is not included - separate order required! Chapter Additional Equipment.

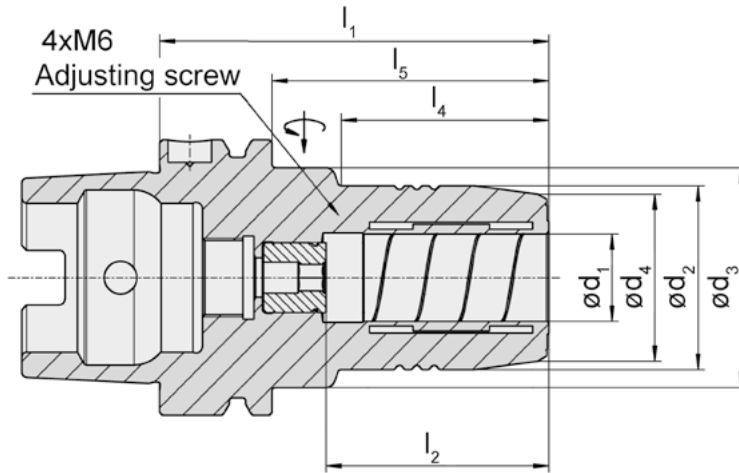
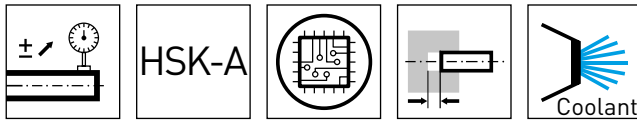
Dimensions in mm



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Part number	d ₁	d ₂	d ₆	l ₁	l ₂	l ₄	Weight [kg]	M _{min} [Nm]	System
HDS4X.SK40.06.080	6	27	21	80	36	61	1	16	SK 40
HDS4X.SK40.06.120	6	27	21	120	36	101	1.2	16	SK 40
HDS4X.SK40.08.080	8	27	21	80	36	61	1	23	SK 40
HDS4X.SK40.08.120	8	27	21	120	36	101	1.2	23	SK 40
HDS4X.SK40.12.080	12	32	24	80	47	61	1	90	SK 40
HDS4X.SK40.12.120	12	32	24	120	47	101	1.3	90	SK 40
HDS4X.SK40.20.080	20	42	33	80	52	61	1.2	330	SK 40
HDS4X.SK40.20.120	20	42	33	120	52	101	1.3	330	SK 40

Dimensions in mm



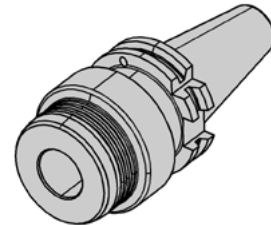
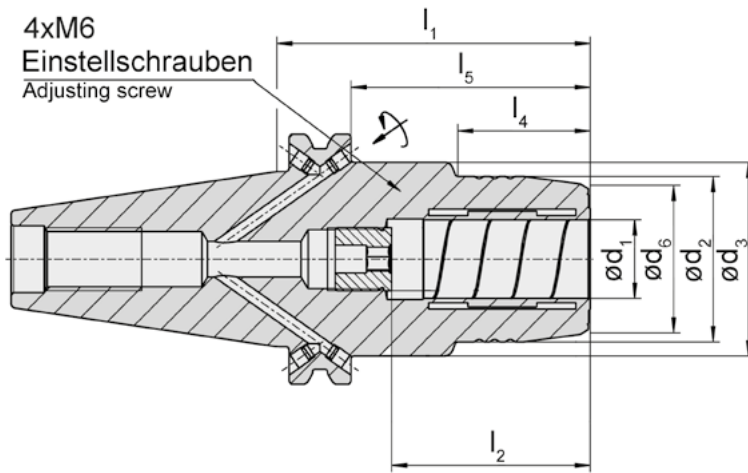
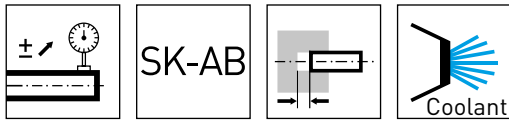
Part number	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDR.HSKA040.12.080	12	32	33.5	28	80	46	48	60	0.5	90	HSK-A 40
HDR.HSKA040.20.100	20	42	53	38	100	51	47	-	1	330	HSK-A 40
HDR.HSKA050.12.085	12	32	40	28	85	46	44	59	0.8	90	HSK-A 50
HDR.HSKA063.12.085	12	32	50	28	85	46	40	59	1.1	90	HSK-A 63
HDR.HSKA063.20.090	20	42	50	38	90	51	48	64	1.3	330	HSK-A 63
HDR.HSKA063.32.125	32	64	75	60	125	61	63	99	2.7	650	HSK-A 63
HDR.HSKA100.12.095	12	32	50	28	95	46	47	66	2.6	90	HSK-A 100
HDR.HSKA100.20.105	20	42	50	38	105	51	59	76	2.8	330	HSK-A 100
HDR.HSKA100.32.110	32	64	75	60	110	61	62	81	3.8	650	HSK-A 100

Coolant tube is not included - separate order required! Chapter Additional Equipment.

Dimensions in mm

Spare Parts

Hydraulic Expansion Toolholder zero	Clamping Screw	TORX PLUS® Wrench
HDR.HSKA...		
HDR.HSK...	6.075T15P	T15PQ



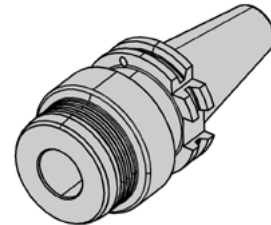
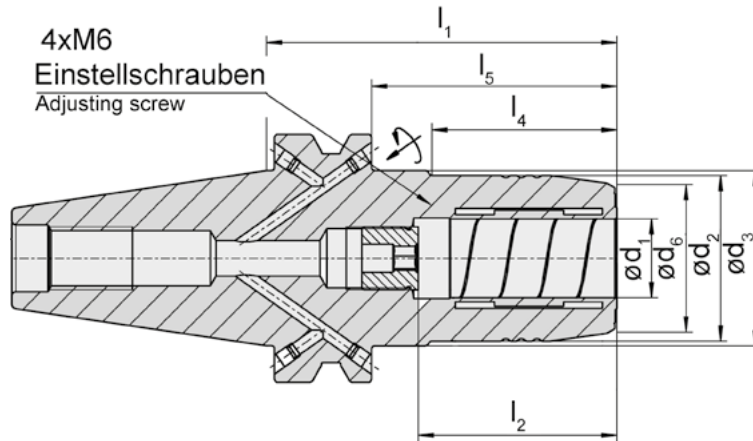
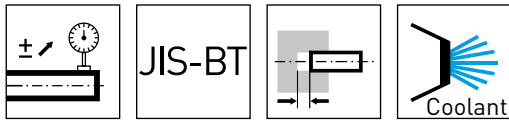
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Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDR.SK40.12.081	12	32	49.5	28	80.5	46	31.5	61.5	1.4	90	SK 40
HDR.SK40.20.081	20	42	49.5	38	80.5	51	34	61.5	1.4	330	SK 40
HDR.SK50.20.081	20	42	49.5	38	80.5	51	34	61.5	3.3	330	SK 50
HDR.SK50.32.103	32	64	70	60	103.2	-	61	81	4.4	650	SK 50

Dimensions in mm

Spare Parts

Hydraulic Expansion Toolholder zero	Clamping Screw	TORX PLUS® Wrench
HDR...	6.075T15P	T15PQ

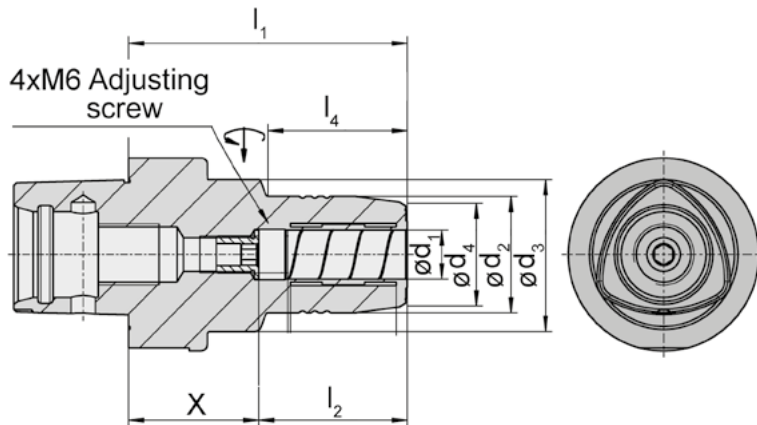
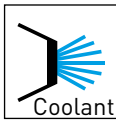
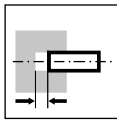
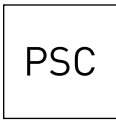
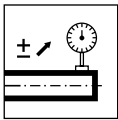


Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₄	l ₅	Weight [kg]	M _{min} [Nm]	System
HDR.BT30.20.090	20	42	44.5	37.5	90	51	47.5	67	1.5	330	JIS-BT 30
HDR.BT40.12.090	12	32	44.5	28	90	46	44.5	63	1.4	90	JIS-BT 40
HDR.BT40.20.090	20	42	44.5	38	90	51	47.5	63	1.5	330	JIS-BT 40
HDR.BT50.20.090	20	42	44.5	38	90	51	34	52	4	330	JIS-BT 50
HDR.BT50.32.120	32	64	70.5	60	120	61	62.5	82	5.3	650	JIS-BT 50

Dimensions in mm

Spare Parts

Hydraulic Expansion Toolholder zero	Clamping Screw	TORX PLUS® Wrench
HDR.BT30.20.090		
HDR.B...	6.075T15P	T15PQ



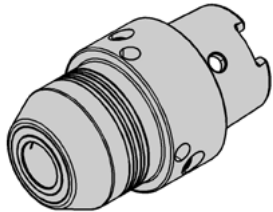
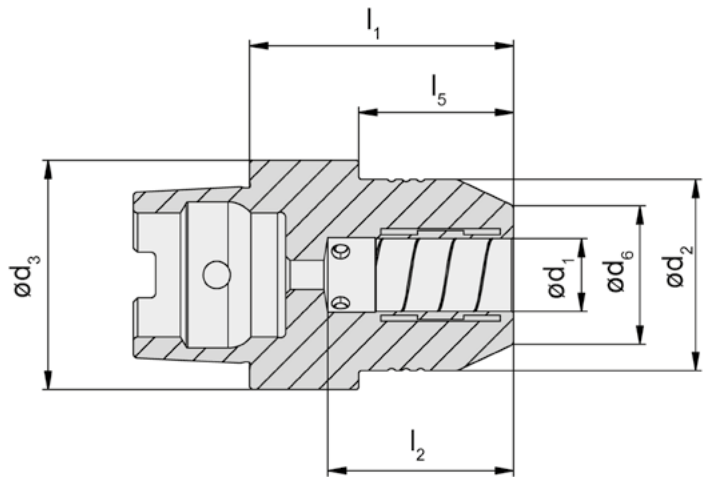
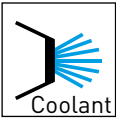
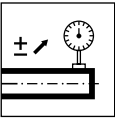
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Part number	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	l ₄	Weight [kg]	M _{min} [Nm]	System
HDR.C4.12.081	12	32	32	28	81	46	47	0.7	90	PSC 40
HDR.C5.12.085	12	32	32	28	85	46	44	0.9	90	PSC 50
HDR.C5.20.090	20	42	42	38	90	51	52	1.05	330	PSC 50
HDR.C6.12.087	12	32	50	28	87	46	39	1.3	90	PSC 63
HDR.C6.20.097	20	42	42	38	97	51	55	1.6	330	PSC 63
HDR.C6.32.110	32	62.5	62.5	59	110	61	62	2.8	650	PSC 63

Dimensions in mm

Spare Parts

Hydraulic Expansion Toolholder zero	Clamping Screw	TORX PLUS® Wrench
HDR...	6.075T15P	T15PQ

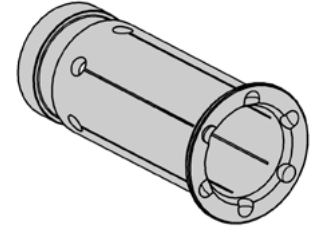
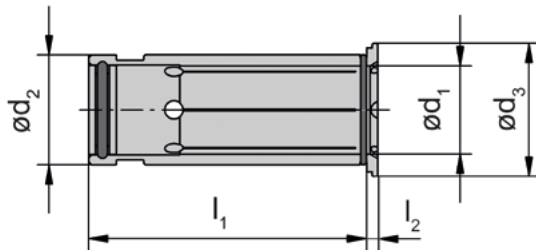
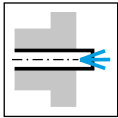


Part number	d ₁	d ₂	d ₃	d ₆	l ₁	l ₂	l ₅	Weight [kg]	M _{min} [Nm]	System
HDRK.HSKC063.20.073	20	52.5	52.5	38	72.5	51	42.5	1.25	82	HSK-C 63

Dimensions in mm

Spare Parts

Hydraulic Expansion Toolholder zero-K	Clamping Screw	TORX PLUS® Wrench
HDRK.HSKC063.20.073	6.075T15P	T15PQ

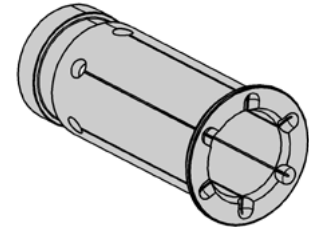
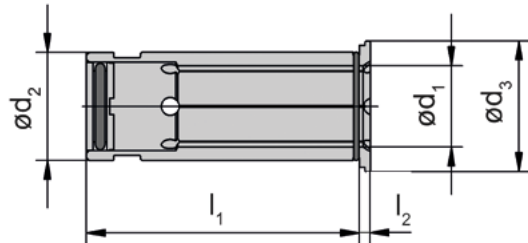
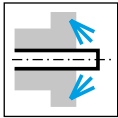


F

Part number	d ₁	d ₂	l ₁	l ₂	d ₃	Weight [kg]
HDZB.1203.KD	3	12	45	2	16.5	0.1
HDZB.1204.KD	4	12	45	2	16.5	0.1
HDZB.1205.KD	5	12	45	2	16.5	0.1
HDZB.1206.KD	6	12	45	2	16.5	0.1
HDZB.1208.KD	8	12	45	2	16.5	0.1
HDZB.2003.KD	3	20	50.5	2	24	0.1
HDZB.2004.KD	4	20	50.5	2	24	0.1
HDZB.2005.KD	5	20	50.5	2	24	0.1
HDZB.2006.KD	6	20	50.5	2	24	0.1
HDZB.2007.KD	7	20	50.5	2	24	0.1
HDZB.2008.KD	8	20	50.5	2	24	0.1
HDZB.2009.KD	9	20	50.5	2	24	0.1
HDZB.2010.KD	10	20	50.5	2	24	0.1
HDZB.2011.KD	11	20	50.5	2	24	0.1
HDZB.2012.KD	12	20	50.5	2	24	0.1
HDZB.2013.KD	13	20	50.5	2	24	0.1
HDZB.2014.KD	14	20	50.5	2	24	0.1
HDZB.2015.KD	15	20	50.5	2	24	0.1
HDZB.2016.KD	16	20	50.5	2	24	0.1
HDZB.3206.KD	6	32	60.5	3	35.5	0.3
HDZB.3208.KD	8	32	60.5	3	35.5	0.3
HDZB.3210.KD	10	32	60.5	3	35.5	0.3
HDZB.3212.KD	12	32	60.5	3	35.5	0.3
HDZB.3214.KD	14	32	60.5	3	35.5	0.3
HDZB.3216.KD	16	32	60.5	3	35.5	0.3
HDZB.3218.KD	18	32	60.5	3	35.5	0.3
HDZB.3220.KD	20	32	60.5	3	35.5	0.3
HDZB.3225.KD	25	32	60.5	3	35.5	0.3

Standard intermediate sleeve d₂ ≤ 12 mm do not use for round-straightening

Dimensions in mm

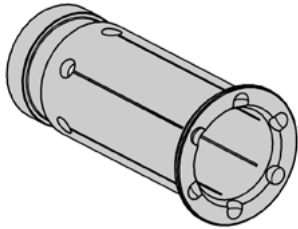
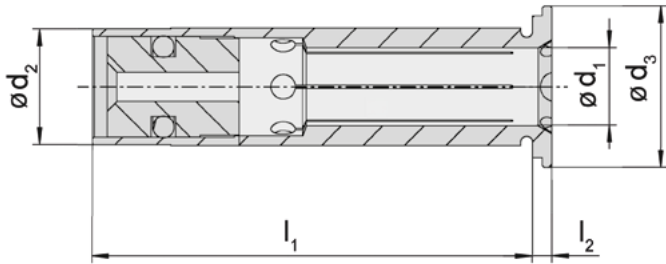
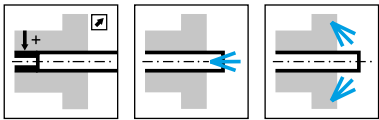


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Part number	d ₁	d ₂	l ₁	l ₂	d ₃	Weight [kg]
HDZB.1203.PK	3	12	45	2	16.5	0.1
HDZB.1204.PK	4	12	45	2	16.5	0.1
HDZB.1205.PK	5	12	45	2	16.5	0.1
HDZB.1206.PK	6	12	45	2	16.5	0.1
HDZB.1208.PK	8	12	45	2	16.5	0.1
HDZB.2003.PK	3	20	50.5	2	24	0.1
HDZB.2004.PK	4	20	50.5	2	24	0.1
HDZB.2005.PK	5	20	50.5	2	24	0.1
HDZB.2006.PK	6	20	50.5	2	24	0.1
HDZB.2007.PK	7	20	50.5	2	24	0.1
HDZB.2008.PK	8	20	50.5	2	24	0.1
HDZB.2009.PK	9	20	50.5	2	24	0.1
HDZB.2010.PK	10	20	50.5	2	24	0.1
HDZB.2011.PK	11	20	50.5	2	24	0.1
HDZB.2012.PK	12	20	50.5	2	24	0.1
HDZB.2013.PK	13	20	50.5	2	24	0.1
HDZB.2014.PK	14	20	50.5	2	24	0.1
HDZB.2015.PK	15	20	50.5	2	24	0.1
HDZB.2016.PK	16	20	50.5	2	24	0.1
HDZB.3206.PK	6	32	60.5	3	35.5	0.3
HDZB.3208.PK	8	32	60.5	3	35.5	0.3
HDZB.3210.PK	10	32	60.5	3	35.5	0.3
HDZB.3212.PK	12	32	60.5	3	35.5	0.3
HDZB.3214.PK	14	32	60.5	3	35.5	0.3
HDZB.3216.PK	16	32	60.5	3	35.5	0.3
HDZB.3218.PK	18	32	60.5	3	35.5	0.3
HDZB.3220.PK	20	32	60.5	3	35.5	0.3
HDZB.3225.PK	25	32	60.5	3	35.5	0.3

Standard intermediate sleeve d₂ ≤ 12 mm do not use for round-straightening

Dimensions in mm



F

Part number	d ₁	d ₂	l ₁	l ₂	d ₃	Weight [kg]
HDZB.1206.KDV	6	12	45	2	16.5	0.1
HDZB.1206.PKV	6	12	45	2	16.5	0.1
HDZB.1208.KDV	8	12	45	2	16.5	0.1
HDZB.1208.PKV	8	12	45	2	16.5	0.1

Due to the fitted collet, the length adjustment of the hydraulic expansion toolholder cannot be used. Due to reinforced collar also applicable at $d_2 \leq 12$ mm for adjustable runout hydraulic expansion toolholder type HDR.

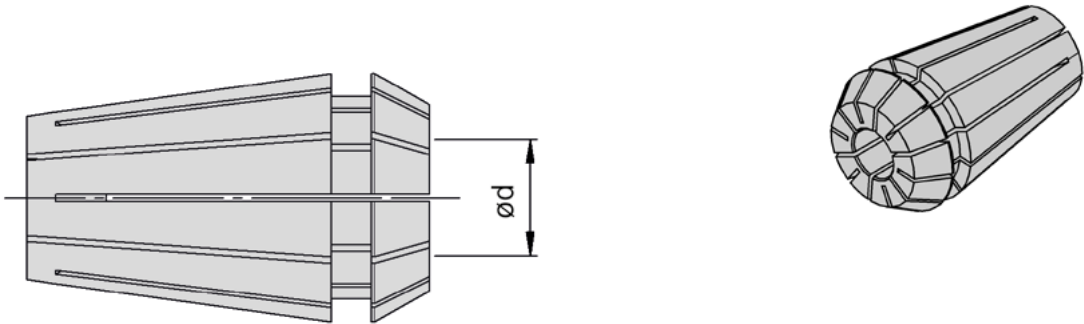
Dimensions in mm



G

FLOATING HOLDERS

SYSTEM PZ



Part number	d	Size
62 16 06	6	16
62 16 08	8	16
62 16 10	10	16

Dimensions in mm

G

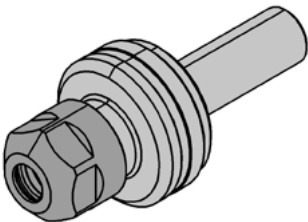
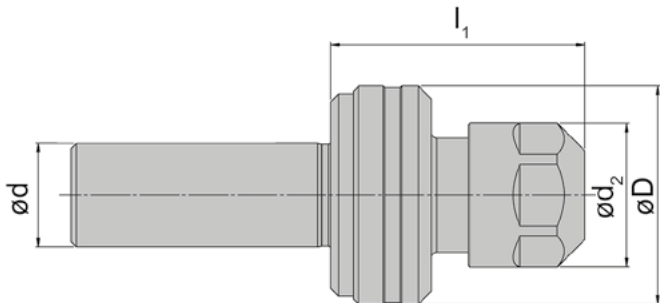
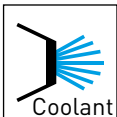
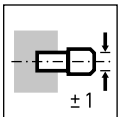
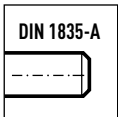
Sealing Ring

20



Part number	d	Size
20 10721 060	6	16
20 10721 080	8	16
20 10721 100	10	16

Dimensions in mm



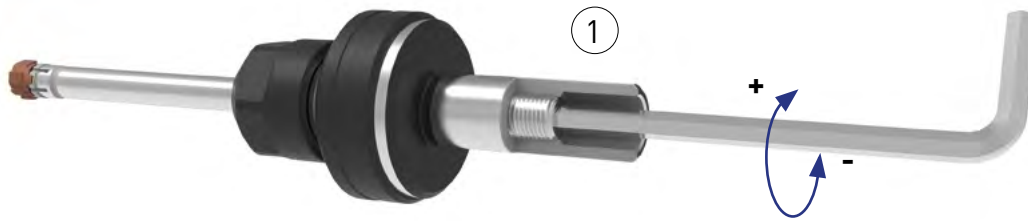
Part number	l_1	d	D	d_2	Size
PZ60.16.16.044	44	16	42	28	16
PZ60.16.20.044	44	20	42	28	16

Dimensions in mm



For use on lathes

Spring force / Deflection resistance



Positional errors between the workpiece and tool can be compensated by means of the floating adjustment mechanism.

Spring Force / Deflection Resistance

Turn the adjusting screw (1) clockwise to increase the spring force and limit the amount of radial float. When the screw is turned fully to the end position, the floating holder becomes rigid.

The end position serves as the reference point for the settings described below.

Adjusting the Spring Force

By turning the adjusting screw (1) clockwise, the spring force increases and the float travel is limited. Turned to the end position, the floating holder is rigid. The end position is the starting point for the settings described below.

Adjusting Screw Settings from the End Position

Rigid:

Turn the adjusting screw fully to the end position.

Hard:

Turn back $\frac{1}{4}$ to $\frac{1}{2}$ turn.

Medium:

Turn back 1 to $1\frac{1}{4}$ turns.

Soft:

The clamped tool should return automatically to the center position with as little resistance as possible. When using a soft setting, the influence of the tool weight must be taken into account.

Notes

- For bore diameters up to approximately $\varnothing 15$ mm, a soft setting is recommended.
- If a Y-axis is available, we recommend aligning the tool to within $< 10 \mu\text{m}$ of the spindle centerline.
- The lead angle of reaming tools used with the URMA floating holder should not exceed 45° .
- The floating-holder setting depends on the application and may vary.
- Cutting data may need to be adjusted when using the floating holder.
- All values are approximate and apply to the URMA floating holder.



H

TECHNICAL INFORMATION

Section	Page
Torque Values	230
Torque Wrenches and Drivers	231

Torque values are now laser-etched on the holder body for quick reference.

Holders made before 2025 did not include torque markings.

The use of lubricant, such as copper paste or similar products, is not recommended due to altering the torque required to fully secure the screw/clamping mechanism.

System	Screw	Nm	Type	Wrench	Driver	Torque Wrench
B105	6.075T15P	5	T15P	T15PQ	D T15 PK	D 28 VL
B110	6.075T15P	5	T15P	T15PQ	D T15 PK	D 28 VL
B117.DD...3	5.12T20P	6	T20P	T20PQ	DT20PK	D 515 QL
B117.DD...4-6	6.17T20P	7	T20P	T20PQ	DT20PK	D 515 QL
BKT105	6.075T15P	5	T15P	T15PQ	D T15 PK	D 28 VL
BKT110	6.075T15P	5	T15P	T15PQ	D T15 PK	D 28 VL
BKT356	5.12T20P	5.5	T20P	T20PQ	D T15 PK	D 515 QL
MDR.016	C009000	0.7	T6	T6L	D T6 K	D 041 VL
MDR.016...Z	C009022	4	T15	T15Q	D T15 K	D 28 VL
MDR.019	C009000	0.7	T6	T6L	D T6 K	D 041 VL
MDR.019...Z	C009023	6	T20	T20Q	D T20 Q	D515QL
MDR.024	C009001	1.5	T8	T8L	D T8 K	D 15 VL
MDR.024-029...Z	C009024	16	T30	T30Q	-	-
MDR.029	C009001	1.5	T8	T8L	D T8 K	D 15 VL
MDR.036...Z	C009025	18	T30	T30Q	-	-
MDR.036	C009001	1.5	T8	T8L	D T8 K	D 15 VL
MDR.044	C009002	1.5	T8	T8L	D T8 K	D 15 VL
MDR.052	C009002	1.5	T8	T8L	D T8 K	D 15 VL
MDR.061	C009002	1.5	T8	T8L	D T8 K	D 15 VL
MDR.08	C009051	0.6	T6	T6L	D T6 K	D 041 VL
MDR.081	C009004	3.5	T15	T15Q	D T15 K	D 15 VL
MDR.10	C009052	0.9	T7	T7L	D T7 K	D 041 VL
MDR.101	C009004	3.5	T15	T15Q	D T15 K	D 15 VL
MDR.11...D	C009053...	1.4	T9	T9L	D T9 K	D 15 VL
MDR.11...S	C009053B	1.4	T9	T9L	D T9 K	D 15 VL
MDR.121	C009004	3.5	T15	T15Q	D T15 K	D 15 VL
MDR.13...D	C009054...	2	T10	T10L	D T10 K	D 15 VL
MDR.13...S	C009054B	2	T10	T10L	D T10 K	D 15 VL
MDR.141	C009004	3.5	T15	T15Q	D T15 K	D 15 VL
MDR.150	C002207	8	4	SW4DIN911	D SW 4,0 K	D 28 VL
MDR.170	C002207	8	4	SW4DIN911	D SW 4,0 K	D 28 VL
MDR.190	C002207	8	4	SW4DIN911	D SW 4,0 K	D 28 VL



D 041 VL
0.4-1 Nm



D 15 VL
1-5 Nm



D 28 VL
2-7 Nm



ED 28 VL
for
D041VL / D15VL / D28VL

Variable Torque Drivers

Torque setting is adjusted with the included wrench.
Torque value is shown in display window.

Standard: EN ISO 6798, BS EN 26789,
ASME B107.14.M.

Accuracy: $\pm 6 \%$

Adjustment Wrench

Adjusts the torque setting on the drivers shown above.

H



D T6 K
D T7 K
D T8 K
D T9 K
D T10 K
D T15 K

for
D 041 VL / D 15 VL / D 28 VL



Driver for Torx Screws

Controlled torque setting when used with a Wiha torque driver.



D515QL
5-14 Nm

Variable Torque Driver

Torque setting is adjusted with the included wrench.

Torque value is shown in display window.

Standard: EN ISO 6798, BS EN 26789, ASME B107.14.M.

Accuracy: $\pm 6\%$,



ED515QL
for
D515QL

Adjustment Wrench

Adjusts the torque setting on the driver shown above.



DT 15 Q
DT 20 Q
DT 30 Q
for
D 515 QL





T6PW
T7PW
T8PW
T9PW
T10PW
T15PW
T20PW
T25PW
T30PW



Plus

Hex Key for Torx Plus® Screws

For all Torx Plus® screws.

Note: Torx Plus® does NOT fit regular Torx.



Sleeve Remover

Disassembly tool for intermediate sleeves
outer diameter d_1 from Ø12 mm to Ø32 mm
(HDZB.12... to HDZB.32...)

HDZBZ



Coolant tube for systems:

020.4012.1306	HSK-A 40
020.5016.1307	HSK-A 50
020.6318.1308	HSK-A 63
020.0024.1310	HSK-A 100



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