
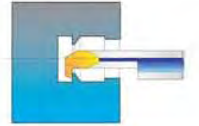
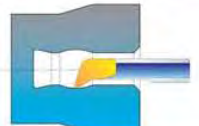
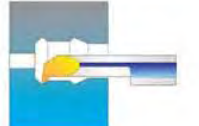
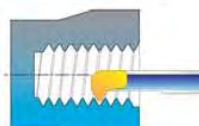
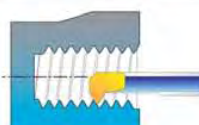
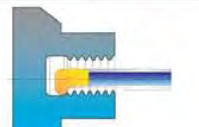

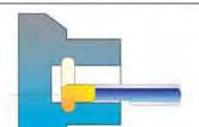

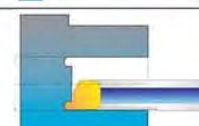

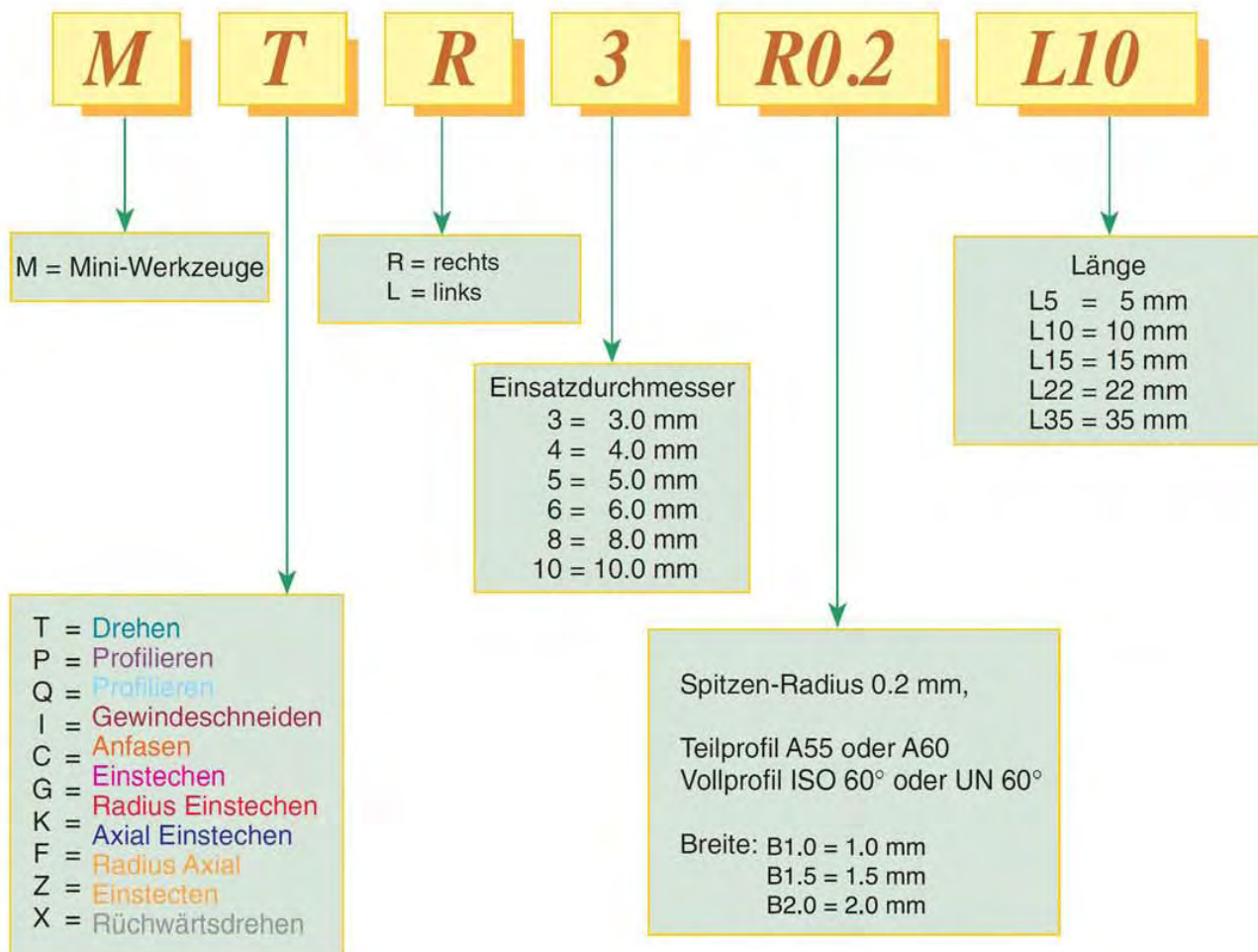


Bezeichnung		Seite
<b>Innendrehen MTR</b>		<b>3</b>
<b>Rückwärtsdrehen MXR</b>		<b>4</b>
<b>Profildrehen + Bohren MPR</b>		<b>5</b>
<b>Profildrehen + Bohren MQR</b>		<b>6</b>
<b>Gewindeschneiden 60° / 55°</b>		<b>7</b>
<b>Gewindeschneiden Vollprofil</b>		<b>8</b>
<b>Anfasen + Bohren MCR</b>		<b>9</b>
<b>Einstecken MGR</b>		<b>10</b>
<b>Vollradius Einstecken MKR</b>		<b>11</b>
<b>Axial Einstecken MFR / MFL</b>		<b>12 - 13</b>
<b>Voll Radius Axial Einstecken</b>		<b>14</b>
<b>Spannhülse / Werkzeugset</b>		<b>15 - 16</b>

## Miniatur-Werkzeuge

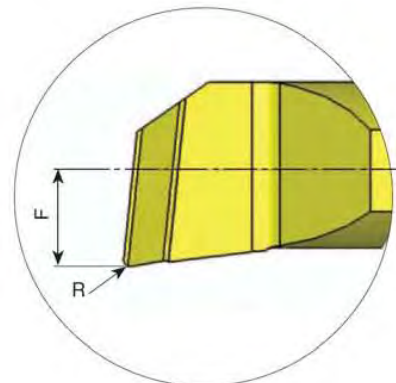
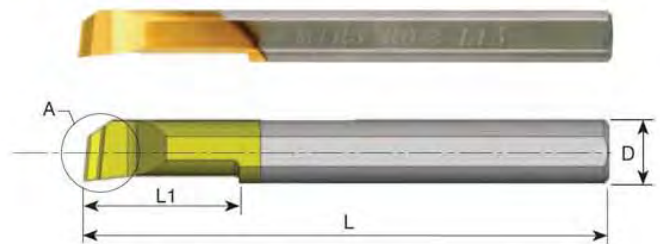
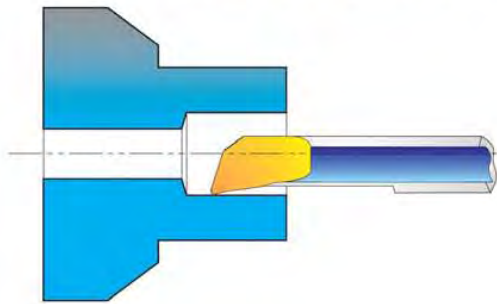
# Produkt-Bezeichnung

## Mini-Werkzeuge



## Miniatur-Werkzeuge

### MTR-Einsätze Innendrehen



Detail A

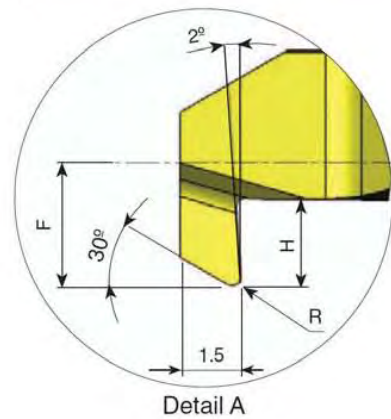
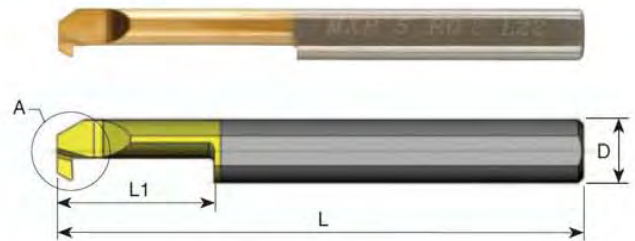
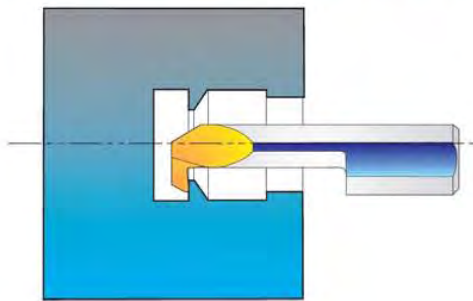
D	Bestellcode	L	L1	R	F	Min. Bohrungsdurchmesser	Halter *
3.0	MTR 1 R0.05 L4	39	4	0.05	0.5	1.0	SIM 0020 H3
3.0	MTR 1.5R0.10 L6	39	6	0.10	0.7	1.5	SIM 0020 H3
3.0	MTR 2 R0.15 L5	39	5	0.15	0.8	2.1	SIM 0020 H3
3.0	MTR 2 R0.15 L10	39	10	0.15	0.8	2.1	SIM 0020 H3
3.0	MTR 3 R0.05 L10	39	10	0.05	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.05 L15	39	15	0.05	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.2 L10	39	10	0.20	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.2 L15	39	15	0.20	1.3	3.1	SIM 0020 H3
4.0	MTR 4 R0.2 L10	50	10	0.20	1.7	4.1	SIM 0020 H4
4.0	MTR 4 R0.2 L15	50	15	0.20	1.7	4.1	SIM 0020 H4
5.0	MTR 5 R0.2 L15	50	15	0.20	2.1	5.1	SIM 0020 H5
5.0	MTR 5 R0.2 L22	50	22	0.20	2.1	5.1	SIM 0020 H5
6.0	MTR 6 R0.2 L15	50	15	0.20	2.8	6.1	SIM 0020 H6
6.0	MTR 6 R0.2 L22	50	22	0.20	2.8	6.1	SIM 0020 H6
8.0	MTR 8 R0.2 L15	63	15	0.20	3.8	8.1	SIM 0020 H8
8.0	MTR 8 R0.2 L22	63	22	0.20	3.8	8.1	SIM 0020 H8
10.0	MTR10R0.2 L35	72	35	0.20	4.8	10.1	SIM 0020 H10

Bestellbeispiel: MTR 4 R0.2 L15 BXC

Für linke Ausführung MTL statt MTR angeben

## Miniatur-Werkzeuge

### MXR-Einsätze Rückwärtsdrehen



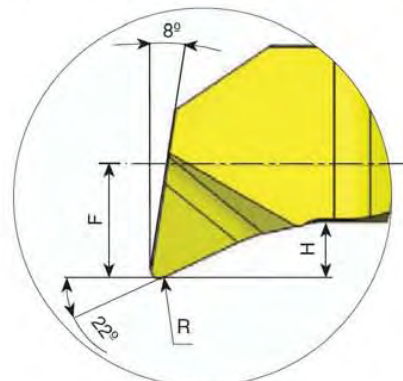
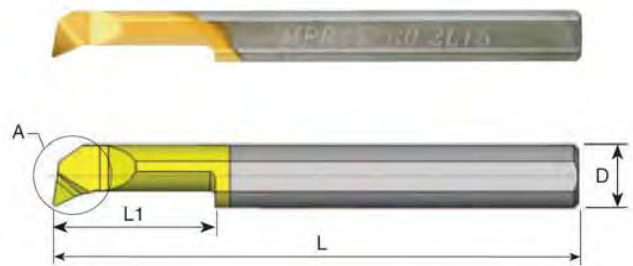
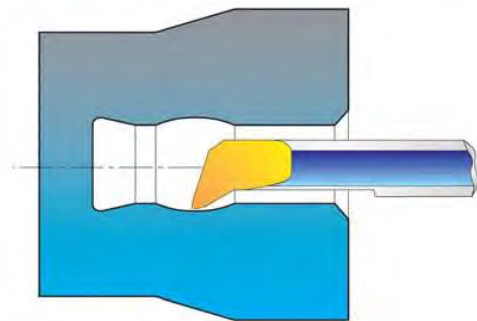
D	Bestellcode	L	L1	R	H	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MXR 4 R0.1 L10</b>	50	10	0.10	0.5	1.3	3.1	SIM 0020 H4
4.0	<b>MXR 4 R0.15 L10</b>	50	10	0.15	0.8	1.6	4.1	SIM 0020 H4
4.0	<b>MXR 4 R0.15 L15</b>	50	15	0.15	0.8	1.6	4.1	SIM 0020 H4
5.0	<b>MXR 5 R0.2 L15</b>	50	15	0.20	1.0	2.2	5.1	SIM 0020 H5
5.0	<b>MXR 5 R0.2 L22</b>	50	22	0.20	1.0	2.2	5.1	SIM 0020 H5
6.0	<b>MXR 6 R0.2 L15</b>	50	15	0.20	1.8	2.8	6.1	SIM 0020 H6
6.0	<b>MXR 6 R0.2 L22</b>	50	22	0.20	1.8	2.8	6.1	SIM 0020 H6

Bestellbeispiel: MXR 4 R0.15 L15 BXC

\* Weitere Haltergrößen finden Sie auf Seite 135

## Miniatur-Werkzeuge

### MPR-Einsätze Profildrehen und Bohren



Detail A

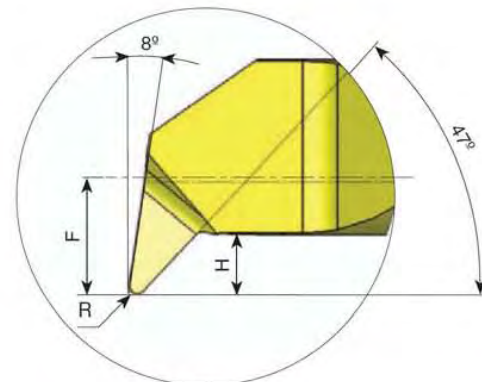
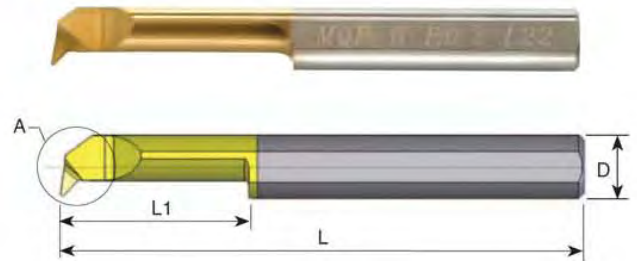
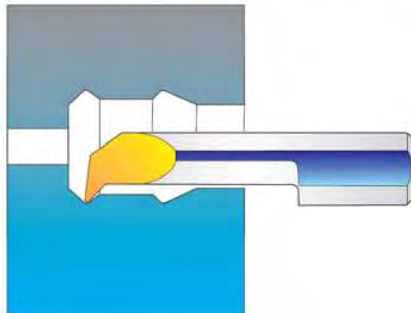
D	Bestellcode	L	L1	R	H	F	Min. Bohrungsdurchmesser	Halter *
3.0	MPR 1 R0.05 L4	39	4	0.05	0.2	0.5	1.0	SIM 0020 H3
3.0	MPR 1.5 R0.10L6	39	6	0.10	0.3	0.7	1.5	SIM 0020 H3
3.0	MPR 2 R0.15 L5	39	5	0.15	0.5	0.8	2.1	SIM 0020 H3
3.0	MPR 2 R0.15L10	39	10	0.15	0.5	0.8	2.1	SIM 0020 H3
3.0	MPR 3 R0.05L10	39	10	0.05	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.05L15	39	15	0.05	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.2 L10	39	10	0.20	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.2 L15	39	15	0.20	0.7	1.3	3.1	SIM 0020 H3
4.0	MPR 4 R0.2 L10	50	10	0.20	0.8	1.7	4.1	SIM 0020 H4
4.0	MPR 4 R0.2 L15	50	15	0.20	0.8	1.7	4.1	SIM 0020 H4
5.0	MPR 5 R0.2 L15	50	15	0.20	1.2	2.1	5.1	SIM 0020 H5
5.0	MPR 5 R0.2 L22	50	22	0.20	1.2	2.1	5.1	SIM 0020 H5
6.0	MPR 6 R0.2 L15	50	15	0.20	1.4	2.8	6.1	SIM 0020 H6
6.0	MPR 6 R0.2 L22	50	22	0.20	1.4	2.8	6.1	SIM 0020 H6
8.0	MPR 8 R0.2 L15	63	15	0.20	1.6	3.8	8.1	SIM 0020 H8
8.0	MPR 8 R0.2 L22	63	22	0.20	1.6	3.8	8.1	SIM 0020 H8
10.0	MPR 10R0.2 L35	72	35	0.20	2.0	4.8	10.1	SIM 0020 H10

Bestellbeispiel: MPR 4 R0.2 L15 BXC

Für linke Ausführung MPL statt MPR angeben

## Miniatur-Werkzeuge

### MQR-Einsätze Profildrehen und Bohren



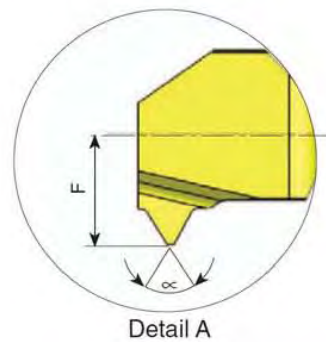
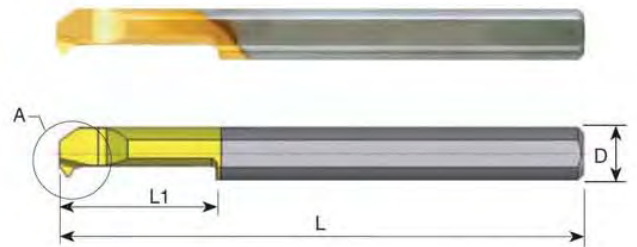
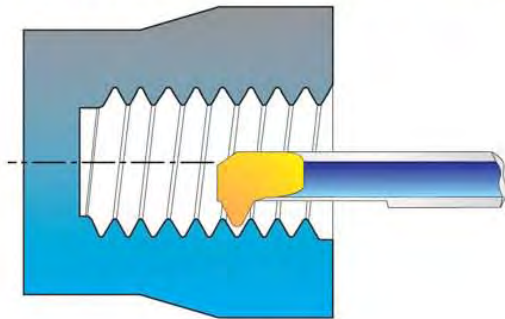
Detail A

D	Bestellcode	L	L1	R	H	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MQR 4 R0.2 L10</b>	50	10	0.20	0.8	1.8	4.1	SIM 0020 H4
4.0	<b>MQR 4 R0.2 L15</b>	50	15	0.20	0.8	1.8	4.1	SIM 0020 H4
5.0	<b>MQR 5 R0.2 L15</b>	50	15	0.20	1.0	2.3	5.1	SIM 0020 H5
5.0	<b>MQR 5 R0.2 L22</b>	50	22	0.20	1.0	2.3	5.1	SIM 0020 H5
6.0	<b>MQR 6 R0.2 L15</b>	50	15	0.20	1.4	2.8	6.1	SIM 0020 H6
6.0	<b>MQR 6 R0.2 L22</b>	50	22	0.20	1.4	2.8	6.1	SIM 0020 H6

## Miniatur-Werkzeuge

# MIR-Einsätze Gewindeschneiden

## Teilprofil 60° & 55° Gewinde



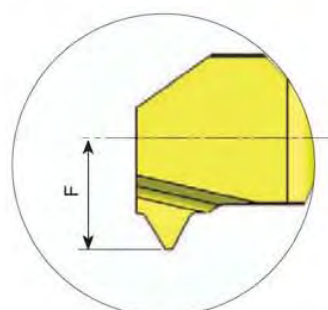
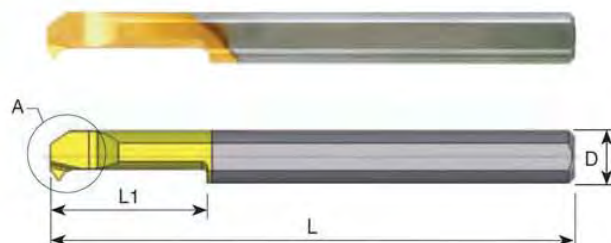
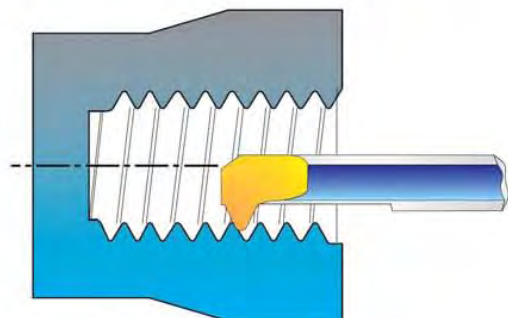
D	Bestellcode	L	L1	$\alpha$	Steigungsbereich		F	Min. Bohrungsdurchmesser	Halter *
					mm	Gänge/Zoll			
3.0	<b>MIR 3 L15 A60</b>	39	15	60	0.8-1.0	32-24	1.4	3.2	SIM 0020 H3
3.0	<b>MIR 3 L15 A55</b>	39	15	55	0.5-1.0	48-24	1.4	3.2	SIM 0020 H3
4.0	<b>MIR 4 L15 A60</b>	50	15	60	0.8-1.0	32-24	1.8	4.1	SIM 0020 H4
4.0	<b>MIR 4 L15 A55</b>	50	15	55	0.5-1.0	48-24	1.8	4.1	SIM 0020 H4
5.0	<b>MIR 5 L15 A60</b>	50	15	60	1.0-1.25	24-20	2.3	5.1	SIM 0020 H5
5.0	<b>MIR 5 L15 A55</b>	50	15	55	0.5-1.25	48-20	2.3	5.1	SIM 0020 H5
6.0	<b>MIR 6 L15 A60</b>	50	15	60	1.0-1.5	24-16	2.6	6.0	SIM 0020 H6
6.0	<b>MIR 6 L15 A55</b>	50	15	55	0.5-1.5	48-16	2.6	6.0	SIM 0020 H6

Bestellbeispiel: MIR 5 L15 A60 BXC

Für linke Ausführung MIL statt MIR angeben

## Miniatur-Werkzeuge

### **MIR-Einsätze** Gewindeschneiden Vollprofil - ISO 60° Gewinde



Detail A

D	Bestellcode	Steigung mm	L	L1	F	Min. Bohrungsdurchmesser	Halter *
3.0	<b>MIR 3 L15 0.5 ISO</b>	0.5	39	15	1.4	3.2	SIM 0020 H3
3.0	<b>MIR 3 L15 0.75 ISO</b>	0.75	39	15	1.4	3.2	SIM 0020 H3
4.0	<b>MIR 4 L15 0.5 ISO</b>	0.5	50	15	1.8	4.1	SIM 0020 H4
4.0	<b>MIR 4 L15 0.75 ISO</b>	0.75	50	15	1.8	4.1	SIM 0020 H4
5.0	<b>MIR 5 L15 1.0 ISO</b>	1.0	50	15	2.2	4.9	SIM 0020 H5

Bestellbeispiel: MIR 5 L15 1.0 ISO BXC

### **Vollprofil - UN 60° Gewinde**

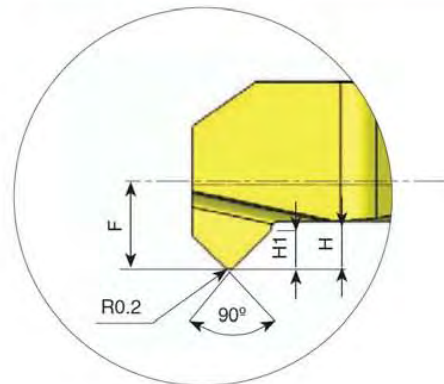
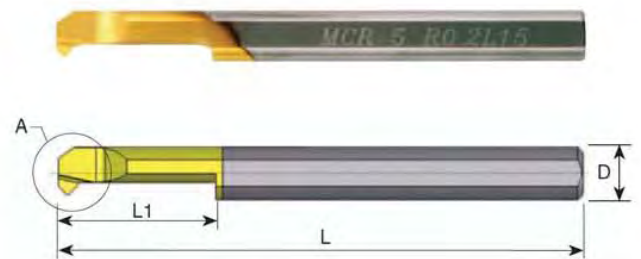
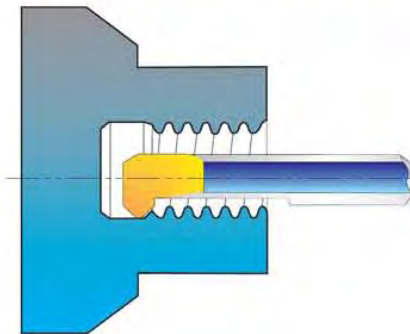
D	Bestellcode	Steigung Gänge/Zoll	L	L1	F	Min. Bohrungsdurchmesser	Halter *
3.0	<b>MIR 3 L15 36UN</b>	36	39	15	1.4	3.2	SIM 0020 H3
3.0	<b>MIR 3 L15 32UN</b>	32	39	15	1.4	3.2	SIM 0020 H3
4.0	<b>MIR 4 L15 36UN</b>	36	50	15	1.8	4.1	SIM 0020 H4
4.0	<b>MIR 4 L15 32UN</b>	32	50	15	1.8	4.1	SIM 0020 H4
5.0	<b>MIR 5 L15 28UN</b>	28	50	15	2.2	4.9	SIM 0020 H5

Bestellbeispiel: MIR 4 L15 36 UN BXC

Für linke Ausführung MIL statt MIR angeben

## Miniatur-Werkzeuge

### MCR-Einsätze Anfasen und Bohren



Detail A

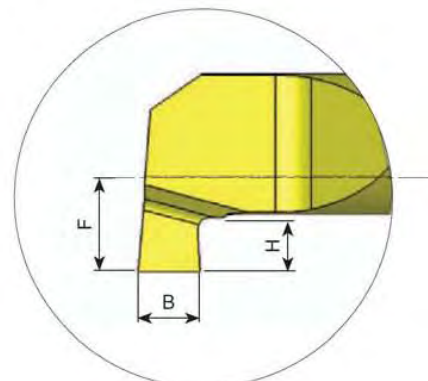
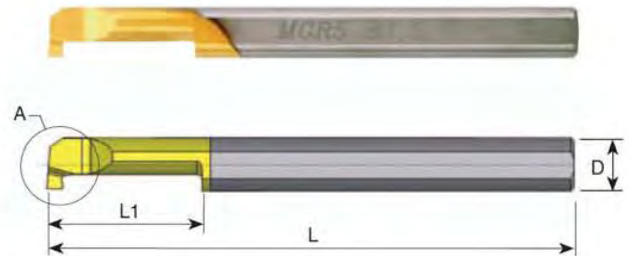
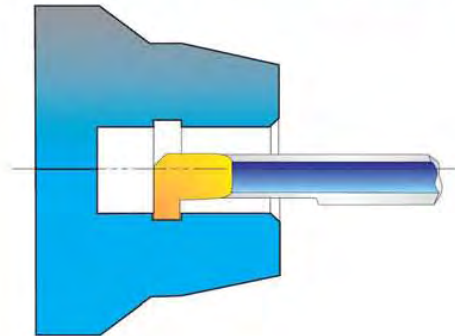
D	Bestellcode	L	L1	R	H	H1	F	Min. Bohrungsdurchmesser	Halter *
3.0	<b>MCR 3 R0.2 L10</b>	39	10	0.20	0.7	0.3	1.3	3.1	SIM 0020 H3
4.0	<b>MCR 4 R0.2 L15</b>	50	15	0.20	0.8	0.4	1.7	4.1	SIM 0020 H4
5.0	<b>MCR 5 R0.2 L15</b>	50	15	0.20	1.2	0.7	2.1	5.1	SIM 0020 H5
6.0	<b>MCR 6 R0.2 L15</b>	50	15	0.20	1.4	0.7	2.8	6.1	SIM 0020 H6

Bestellbeispiel: MCR 4 R0.2 L15 BXC

Für linke Ausführung MCL statt MCR angeben

## Miniatur-Werkzeuge

### MGR-Einsätze *Einstecken*



Detail A

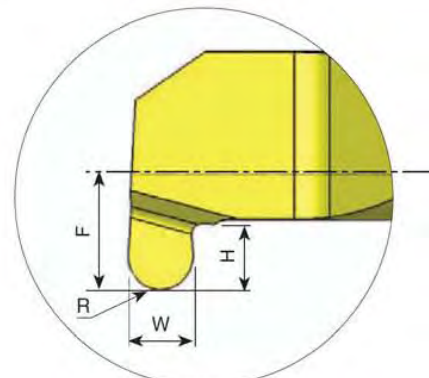
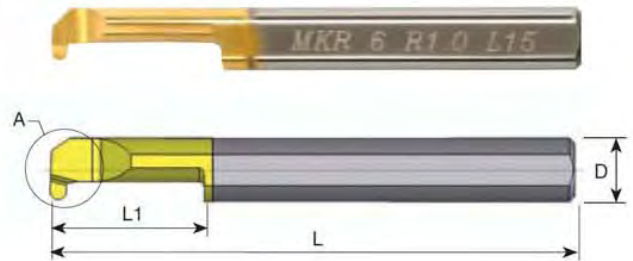
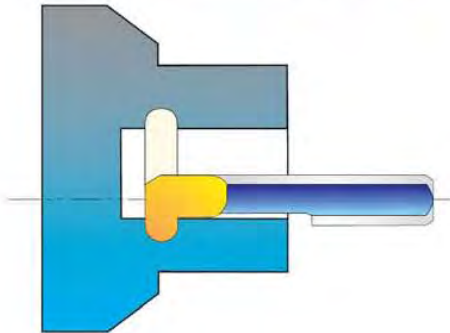
D	Bestellcode	L	L1	B	H	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MGR 4 B1.0 L10</b>	50	10	1.0	1.0	1.7	4.1	SIM 0020 H4
4.0	<b>MGR 4 B1.5 L10</b>	50	10	1.5	1.0	1.7	4.1	SIM 0020 H4
5.0	<b>MGR 5 B1.0 L15</b>	50	15	1.0	1.2	2.3	5.1	SIM 0020 H5
5.0	<b>MGR 5 B1.5 L15</b>	50	15	1.5	1.2	2.3	5.1	SIM 0020 H5
5.0	<b>MGR 5 B2.0 L15</b>	50	15	2.0	1.2	2.3	5.1	SIM 0020 H5
6.0	<b>MGR 6 B1.0 L15</b>	50	15	1.0	1.4	2.8	6.1	SIM 0020 H6
6.0	<b>MGR 6 B1.5 L15</b>	50	15	1.5	1.4	2.8	6.1	SIM 0020 H6
6.0	<b>MGR 6 B2.0 L15</b>	50	15	2.0	1.4	2.8	6.1	SIM 0020 H6

Bestellbeispiel: MGR 5 B1.5 L15 BXC

Für linke Ausführung MGL statt MGR angeben

## Miniatur-Werkzeuge

### MKR-Einsätze Voll Radius Einstechen



Detail A

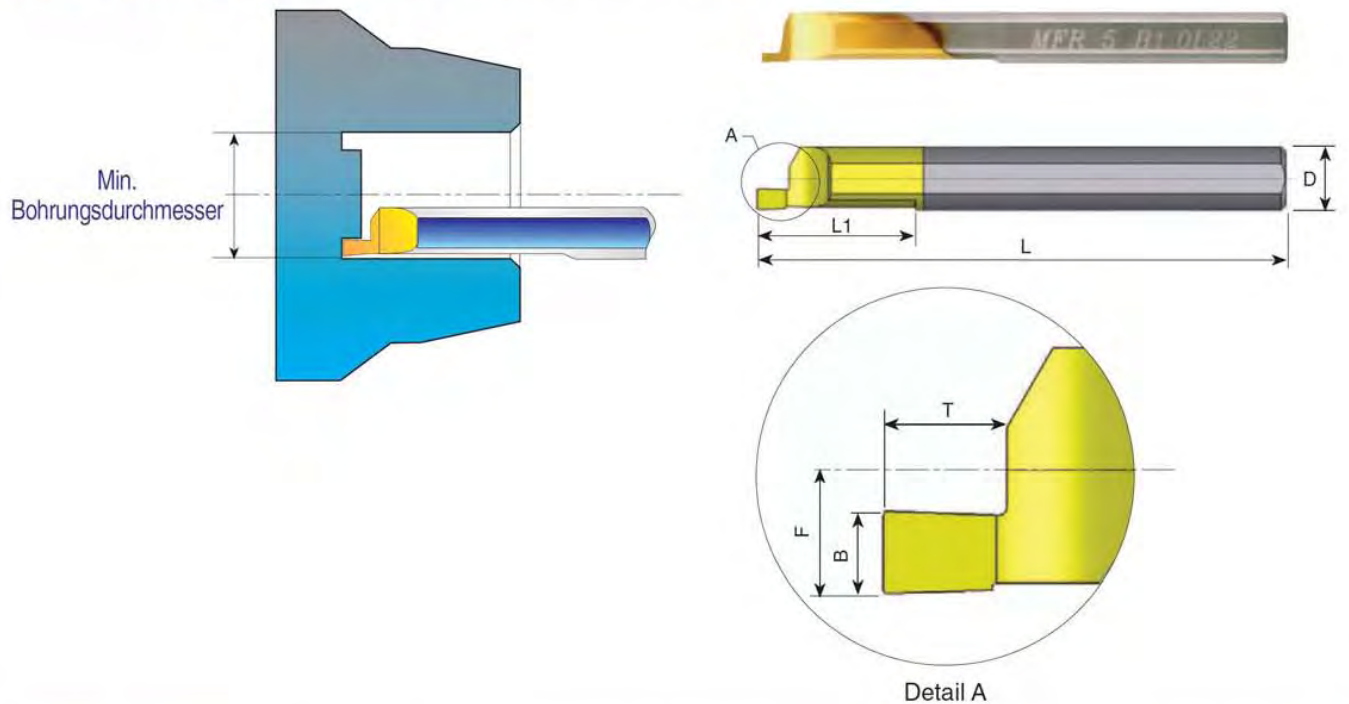
D	Bestellcode	L	L1	R	W	H	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MKR 4 R0.5 L10</b>	50	10	0.50	1.0	1.0	1.7	4.1	SIM 0020 H4
4.0	<b>MKR 4 R0.75 L10</b>	50	10	0.75	1.5	1.0	1.7	4.1	SIM 0020 H4
5.0	<b>MKR 5 R0.5 L15</b>	50	15	0.50	1.0	1.2	2.3	5.1	SIM 0020 H5
5.0	<b>MKR 5 R0.75 L15</b>	50	15	0.75	1.5	1.2	2.3	5.1	SIM 0020 H5
5.0	<b>MKR 5 R1.0 L15</b>	50	15	1.00	2.0	1.2	2.3	5.1	SIM 0020 H5
6.0	<b>MKR 6 R0.5 L15</b>	50	15	0.50	1.0	1.6	2.8	6.1	SIM 0020 H6
6.0	<b>MKR 6 R0.75 L15</b>	50	15	0.75	1.5	1.6	2.8	6.1	SIM 0020 H6
6.0	<b>MKR 6 R1.0 L15</b>	50	15	1.00	2.0	1.6	2.8	6.1	SIM 0020 H6

Bestellbeispiel: MKR 5 R1.0 L15 BXC

Für linke Ausführung MKL statt MKR angeben

## Miniatur-Werkzeuge

### MFR-Einsätze Axial Einstecken

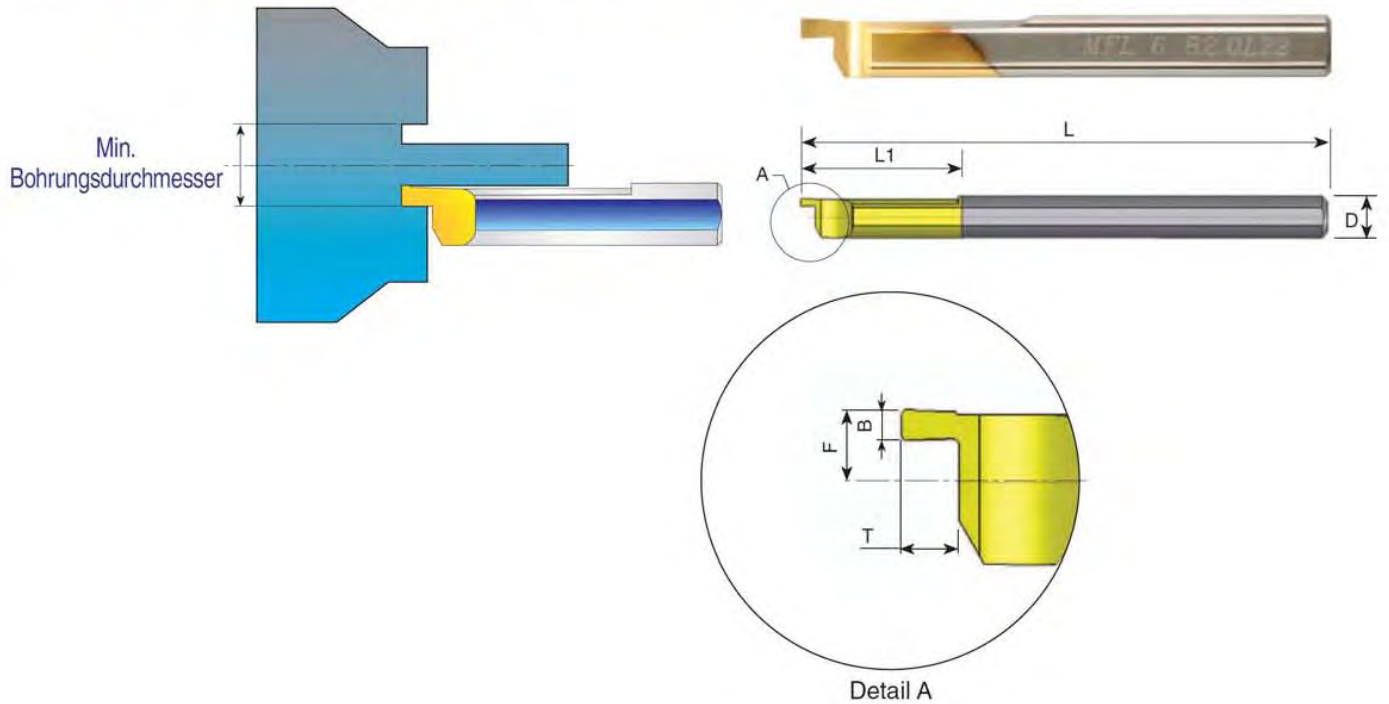


D	Bestellcode	L	L1	B	T	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MFR 4 B0.75 L15</b>	50	15	0.75	1.2	1.95	5.0	SIM 0020 H4
4.0	<b>MFR 4 B1.0 L15</b>	50	15	1.0	1.5	1.95	5.0	SIM 0020 H4
5.0	<b>MFR 5 B0.75 L22</b>	50	22	0.75	1.2	2.45	6.0	SIM 0020 H5
5.0	<b>MFR 5 B1.0 L22</b>	50	22	1.0	1.5	2.45	6.0	SIM 0020 H5
5.0	<b>MFR 5 B1.5 L22</b>	50	22	1.5	2.5	2.45	6.0	SIM 0020 H5
6.0	<b>MFR 6 B1.0 L22</b>	50	22	1.0	1.5	2.95	8.0	SIM 0020 H6
6.0	<b>MFR 6 B1.5 L22</b>	50	22	1.5	2.5	2.95	8.0	SIM 0020 H6
6.0	<b>MFR 6 B2.0 L22</b>	50	22	2.0	3.0	2.95	8.0	SIM 0020 H6
8.0	<b>MFR 8 B2.5 L22</b>	63	22	2.5	3.5	3.95	10.0	SIM 0020 H8

Bestellbeispiel: MFR 5 B1.0 L22 BXC

## Miniatur-Werkzeuge

### MFL-Einsätze Axial Einstecken

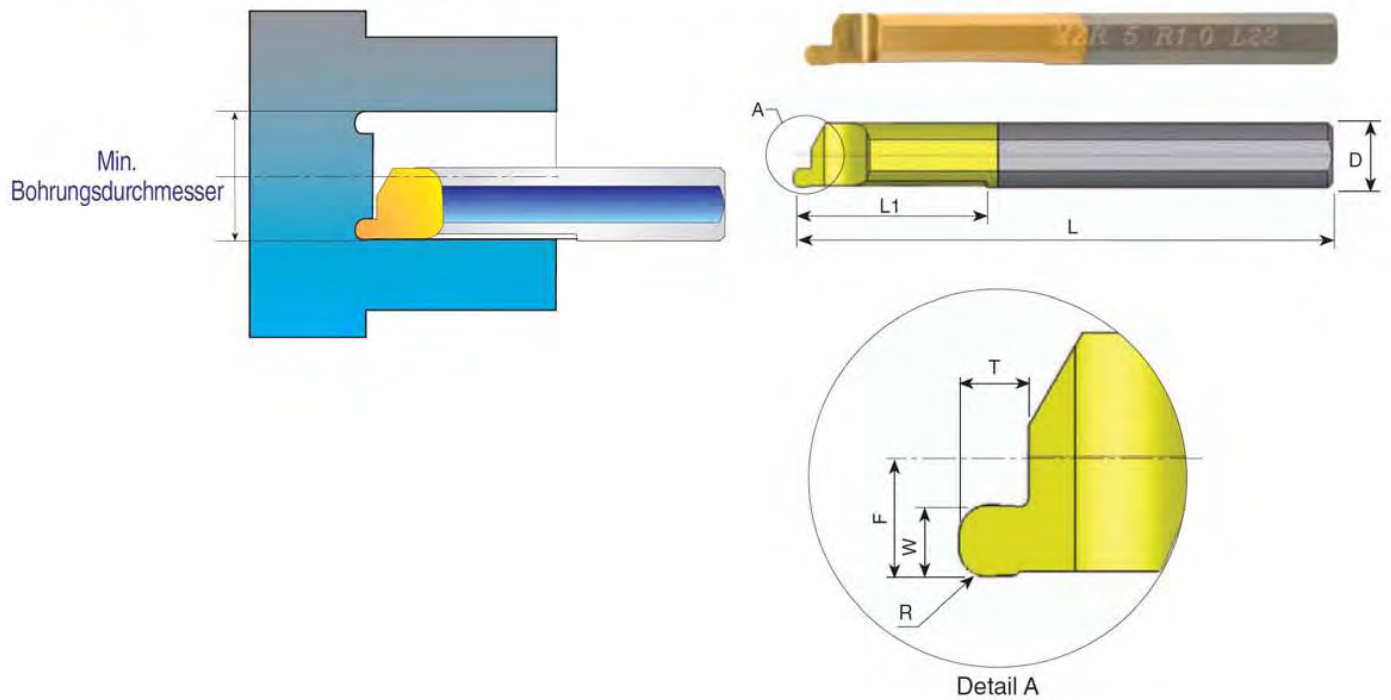


D	Bestellcode	L	L1	B	T	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MFL 4 B0.75 L15</b>	50	15	0.75	1.2	1.75	5.0	SIM 0020 H4
4.0	<b>MFL 4 B1.0 L15</b>	50	15	1.0	1.5	1.75	5.0	SIM 0020 H4
5.0	<b>MFL 5 B0.75 L22</b>	50	22	0.75	1.2	2.25	6.0	SIM 0020 H5
5.0	<b>MFL 5 B1.0 L22</b>	50	22	1.0	1.5	2.25	6.0	SIM 0020 H5
5.0	<b>MFL 5 B1.5 L22</b>	50	22	1.5	2.5	2.25	6.0	SIM 0020 H5
6.0	<b>MFL 6 B1.0 L22</b>	50	22	1.0	1.5	2.75	8.0	SIM 0020 H6
6.0	<b>MFL 6 B1.5 L22</b>	50	22	1.5	2.5	2.75	8.0	SIM 0020 H6
6.0	<b>MFL 6 B2.0 L22</b>	50	22	2.0	3.0	2.75	8.0	SIM 0020 H6
8.0	<b>MFL 8 B2.5 L22</b>	63	22	2.5	3.5	3.75	10.0	SIM 0020 H8

Bestellbeispiel: MFL 6 B1.0 L22 BXC

## Miniatur-Werkzeuge

### MZR-Einsätze Voll Radius Axial Einstecken

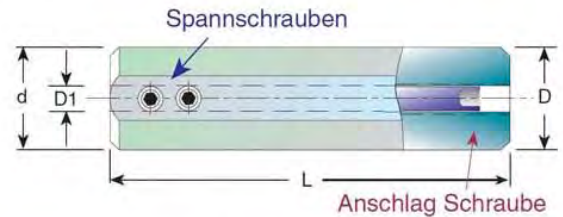


D	Bestellcode	L	L1	R	W	T	F	Min. Bohrungsdurchmesser	Halter *
4.0	<b>MZR 4 R0.5 L15</b>	50	15	0.50	1.0	1.2	1.95	5.0	SIM 0020 H4
4.0	<b>MZR 4 R0.75 L15</b>	50	15	0.75	1.5	1.5	1.95	5.0	SIM 0020 H4
5.0	<b>MZR 5 R0.5 L22</b>	50	22	0.50	1.0	1.2	2.45	6.0	SIM 0020 H5
5.0	<b>MZR 5 R0.75 L22</b>	50	22	0.75	1.5	1.5	2.45	6.0	SIM 0020 H5
5.0	<b>MZR 5 R1.0 L22</b>	50	22	1.00	2.0	2.5	2.45	6.0	SIM 0020 H5
6.0	<b>MZR 6 R0.5 L22</b>	50	22	0.50	1.0	1.2	2.95	8.0	SIM 0020 H6
6.0	<b>MZR 6 R0.75 L22</b>	50	22	0.75	1.5	1.5	2.95	8.0	SIM 0020 H6
6.0	<b>MZR 6 R1.0 L22</b>	50	22	1.00	2.0	2.5	2.95	8.0	SIM 0020 H6

Bestellbeispiel: MZR 5 R0.5 L22 BXC

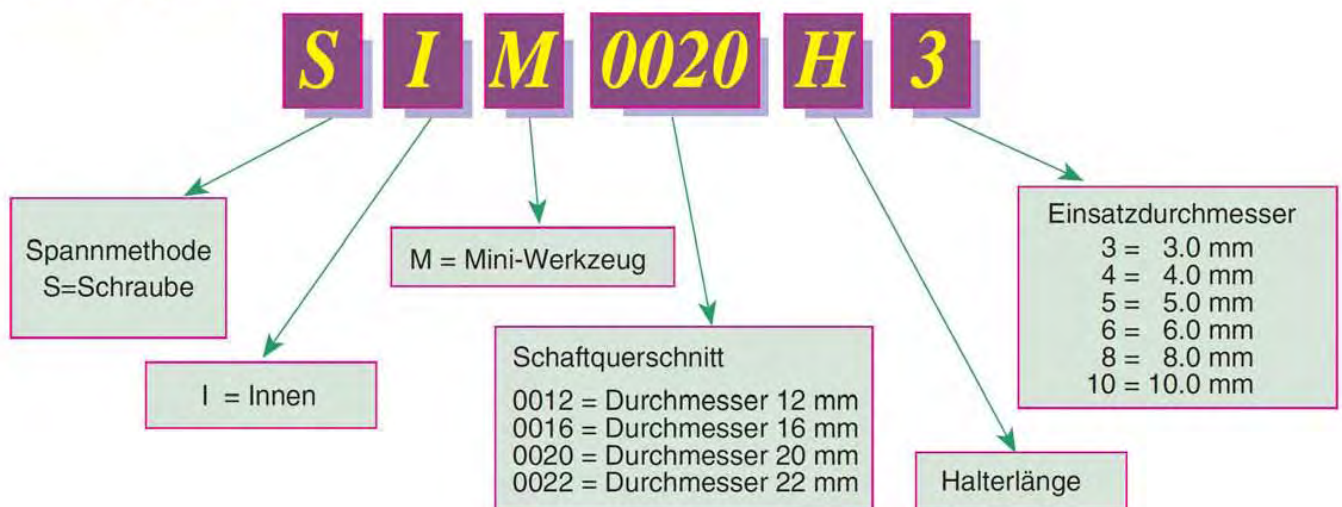
## Miniatur-Werkzeuge

# SPANNHÜLSE



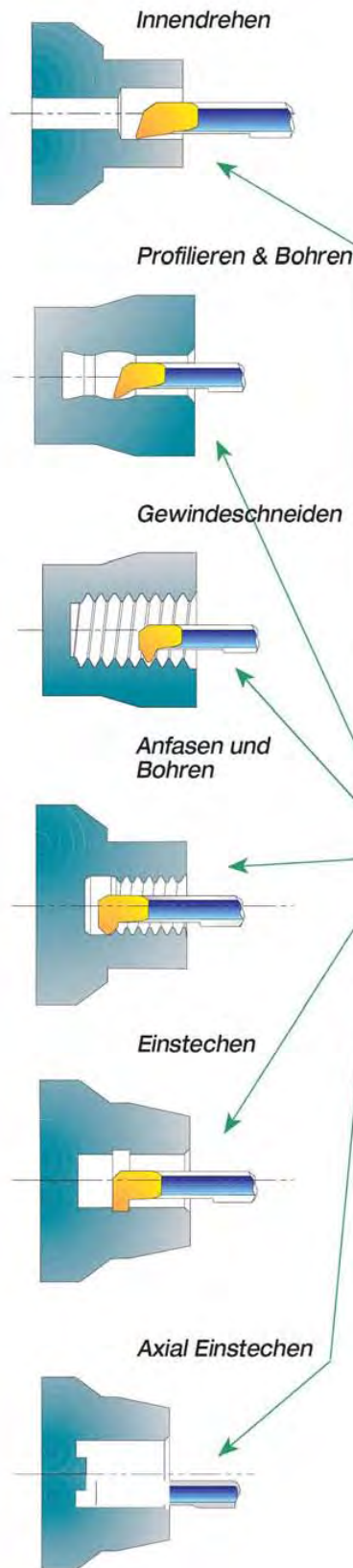
D1	Bestellcode	L	D	d	Torx Schlüssel	Spann-Schraube für Platte	Anschlag-Schraube
3.0	SIM0012 H3	88	12	20	K25	S24	S35
3.0	SIM0016 H3	88	16	20	K25	S25	S35
3.0	SIM0020 H3	88	20	20	K25	S25	S35
3.0	SIM0022 H3	88	22	20	K25	S25	S35
4.0	SIM0012 H4	88	12	20	K25	S24	S35
4.0	SIM0016 H4	88	16	20	K25	S25	S35
4.0	SIM0020 H4	88	20	20	K25	S25	S35
4.0	SIM0022 H4	88	22	20	K25	S25	S35
5.0	SIM0012 H5	88	12	20	K25	S24	S35
5.0	SIM0016 H5	88	16	20	K25	S25	S35
5.0	SIM0020 H5	88	20	20	K25	S25	S35
5.0	SIM0022 H5	88	22	20	K25	S25	S35
6.0	SIM0016 H6	88	16	20	K25	S25	S35
6.0	SIM0020 H6	88	20	20	K25	S25	S35
6.0	SIM0022 H6	88	22	20	K25	S25	S35
8.0	SIM0020 H8	88	20	20	K25	S25	S35
10.0	SIM0020 H10	88	20	20	K25	S25S	S35

## Mini-Spannhülsen



## Miniatur-Werkzeuge

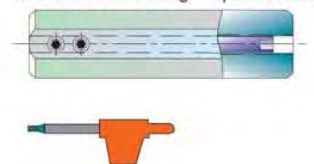
# Miniatur Schneidwerkzeugsets



KT4-20	KT5-20
MTR 4 R0.2 L10	MTR 5 R0.2 L15
MPR 4 R0.2 L10	MPR 5 R0.2 L15
MIR 4 L15 A60	MIR 5 L15 A60
MCR 4 R0.2 L15	MCR 5 R0.2 L15
MGR 4 B1.5 L10	MGR 5 B1.5 L15
MFR 4 B1.0 L15	MFR 5 B1.0 L22
SIM 0020 H4	SIM 0020 H5
K25	K25



Miniatur Werkzeug - Spannhülse



Bestellbeispiel: KT4-20

Auch Spannhülsen mit 16mm Schaftdurchmesser lieferbar.  
Bestellbeispiel: KT4-16