INOTop®

Spannen ohne Druck

Clamping without pressure

OPTIMALE RUNDHEIT DURCH GEGENLAGER

Mit **INO**Top® erreichen Sie höchste Rundheiten durch das Prinzip des „festen Gegenlagers". Speziell dünnwandige Bauteile können mit **INO**Top® polygonfrei gespannt werden.

- Zentrieren des Bauteils ohne Druck von außen
- Für polygonfreies Spannen
- Perfekte Rundheitsergebnisse
- Definierte Krafteinleitung durch die bewegliche Spannbacke
- Kostengünstig in der Anschaffung
- Keine teuren Sonderspannlösungen notwendig

OPTIMAL ROUNDNESS DUE TO COUNTER BEARINGS

***INO**Top® produces best roundness results thanks to the fixed counter bearing principle. By using **INO**Top® , thin-walled parts in particular can be clamped without polygon formation.*

- *Part is centred without pressure from outside for clamping*
- *Without polygon formation*
- *Perfect roundness results*
- *Defined clamping force by the moveable jaw*
- *Low-costs*
- *No expensive special clamping solutions needed*

Verformungsarm Spannen
Low deformation clamping

SPANNEN OHNE DRUCK

Die innovative **INO**Top®-Hybridspannbacke von HWR wurde speziell für verformungsempfindliche Bauteile in der Drehbearbeitung konzipiert. Verformungsempfindliche Bauteile werden im herkömmlichen Spannfutter mit **INO**Top® ohne Druck von außen über die Futterfunktion nur zentriert und dann von innen gespannt. Damit verhindert **INO**Top® unerwünschte Polygonbildungen im Spannprozess. Drehergebnisse, die zuvor nur mit kostenintensiven Sonderspannlösungen zu realisieren waren, können nun ganz einfach mit der **INO**Top®-Hybridspannbacke von HWR günstig erreicht werden. Mit **INO**Top® erreichen Sie höchste Rundheiten durch das Prinzip des festen Gegenlagers.

CLAMPING WITHOUT PRESSURE

The innovative **INO**Top® *hybrid clamping jaw by HWR was designed specifically for turning deformation-sensitive parts. In conventional chucks with* **INO**Top®*, components that are sensitive to deformation are simply centred without external pressure via the chuck function and then clamped from the inside.* **INO**Top® *thus prevents unwanted polygon formation. Turning results that were previously only possible with costly special clamping solutions can now be achieved at low cost quite easily. With the innovative* **INO**Top® *hybrid clamping jaws by HWR,* **INO**Top® *produces best roundness results thanks to the fixed counter bearing principle.*

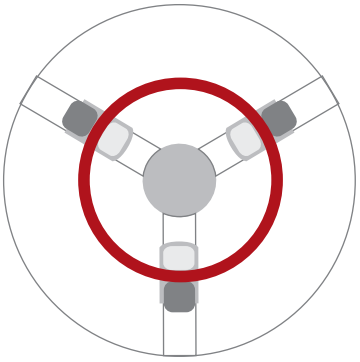
PATENT

Herkömmliche 3-Punkt-Spannung
Conventional 3-point clamping

DAS FUNKTIONSPRINZIP

Beim herkömmlichen Spannen wird der Spanndruck über die Spannpunkte in das Werkstück eingeleitet. Bei dünnwandigen Werkstücken nimmt dieser Spanndruck erheblichen Einfluss auf die Geometrie des Werkstücks. Die Folge ist eine Verformung durch den Spannprozess, welche sich negativ auf die Rundheitsergebnisse auswirkt.

Bei der Verwendung von **INO**Top® wird die Funktion des Spannfutters nur zum Zentrieren des Werkstücks und nicht für den Spannprozess selbst verwendet. Das bedeutet, dass der Spanndruck so weit reduziert werden kann, dass nach dem Zentrieren des Werkstücks kein weiterer Spanndruck ins Werkstück eingeleitet wird. Im Anschluss an den Zentriervorgang wird nun über die manuelle Betätigung der Spindel in der **INO**Top®-Backe die bewegliche Greiferbacke von innen gegen die Zentrierung, das feste Gegenlager, gezogen. Die Spannung findet ohne Einfluss auf die Werkstückgeometrie statt.



Das **INO**Top®-Gegenlagerprinzip
*The **INO**Top® counter bearing principle*

HOW IT WORKS

In conventional clamping, the clamping pressure is introduced into the workpiece via the clamping points. With thin-walled workpieces, this clamping pressure has a considerable influence on the geometry of the workpiece. The result is a deformation due to the clamping process, which has a negative effect on the roundness results.

*When **INO**Top® is used, the function of the chuck is only used for centering the workpiece and not for the clamping process itself. This means that the clamping pressure can be reduced to such an extent that no further clamping pressure is applied to the workpiece after the workpiece has been centered. Following the centering process, the moving gripper jaw is now pulled from the inside against the centering, the fixed counter support, by manually actuating the spindle in the **INO**Top® jaw. The clamping has no influence on the workpiece geometry.*

INOTop®

Futterspezifische Daten
Chuck specific data

Technische Daten siehe Seite 130-131
Technical data see page 130-131

Futter-hersteller *chuck manu-facturer*	**Futtertyp** *chuck type*	**Futter-größe** *chuck size* ø mm	**Backenanschluss des Futters** *jaw-connection of the chuck* S mm / V	N mm	**Typbe-zeichnung** *type de-signation*	**Ident-Nr.** *ident-no.*	**Spannbereich [aussen]** *clamping range [external]* min.–max./mm	**Bauteilwand-stärke** *wall thickness of workpiece* min.–max./mm	**Schwing-kreis** *swing* Ø mm	*** Benötigter Nutenstein** ** needed t-nut*
Auto Strong	N-208	210	V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP09
	V-208		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP08
	N-210	254	V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 254	3 – 25	335	TT70
	V-210		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	160 – 254	3 – 25	335	TT22
	N-212	304	V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 304	3 – 25	385	TT40
	V-212		V = 1,5mm x 60°	N = 18	**TM050**	**813050**	185 – 304	3 – 25	385	GN78
	N-215	381	V = 1,5mm x 60°	N = 22	**TM060**	**813060**	275 – 381	6 – 50	490	GP15
	V-215		V = 1,5mm x 60°	N = 25,5	**TM060**	**813060**	275 – 381	6 – 50	490	X5507
	N-218	450	V = 3,0mm x 60°	N = 25,5	**TM060**	**813060**	275 – 450	6 – 50	560	GP15
	V-218		V = 3,0mm x 60°	N = 25,5	**TM060**	**813060**	335 – 450	6 – 50	560	X5507
	N-220	510	V = 3,0mm x 60°	N = 25,5	**TM080**	**813080**	345 – 510	6 – 50	620	GP15
	N-221	530	V = 3,0mm x 60°	N = 25,5	**TM080**	**813080**	295 – 530	6 – 50	640	X5507
	V-221		V = 3,0mm x 60°	N = 25,5	**TM080**	**813080**	295 – 530	6 – 50	640	
	N-224	610	V = 3,0mm x 60°	N = 25,5	**TM080**	**813080**	405 – 610	6 – 50	720	
	V-224		V = 3,0mm x 60°	N = 25,5	**TM080**	**813080**	375 – 610	6 – 50	720	
	V-232	810	V = 3,0mm x 60°	N = 25,5	**TM080**	**813080**	335 – 810	6 – 50	920	
Bison	3200 / 3500 – 200	200	S = 7,94	N = 12,69	**TZ031**	**814031**	150 – 200	3 – 25	280	
	3200 / 3500 – 250	250	S = 12,7	N = 19,04	**TZ040**	**814040**	150 – 250	3 – 25	330	
	3200 / 3500 – 315	315	S = 12,7	N = 19,04	**TZ043**	**814043**	185 – 315	3 – 25	395	
	3200 / 3500 – 400	400	S = 12,7	N = 19,04	**TZ060**	**814060**	250 – 400	6 – 50	510	
	3200 / 3500 – 500	500	S = 12,7	N = 19,04	**TZ063**	**814063**	250 – 500	6 – 50	610	
Forkardt	F+ 200	200	S = 10	N = 20	**TK030**	**811030**	150 – 206	3 – 25	290	
	FNC 200		S = 10	N = 20	**TK030**	**811030**	150 – 206	3 – 25	290	
	KTG / KTN 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GG20
	NH / NHF 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GG20
	QLC / QLK 200		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	155 – 210	3 – 25	290	*
	QLC / QLK 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GG20
	QLC-KS / QLK-KS 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	155 – 200	3 – 25	280	GG20

* Sondernutenstein
** special t-nut*

Futter-hersteller *chuck manu-facturer*	Futtertyp *chuck type*	Futter-größe *chuck size* ø mm	Backenanschluss des Futters *jaw-connection of the chuck* S mm / V	N mm	Typbe-zeichnung *type de-signation*	Ident-Nr. *ident-no.*	Spannbereich [aussen] *clamping range [external]* min.–max./mm	Bauteilwand-stärke *wall thickness of workpiece* min.–max./mm	Schwing-kreis *swing* Ø mm	* Benötigter Nutenstein ** needed t-nut*
Forkardt	F+ 250	250	S = 12	N = 20	**TK040**	**811040**	150 – 255	3 – 25	335	
	FNC 250		S = 12	N = 20	**TK040**	**811040**	150 – 250	3 – 25	330	
	KTG / KTN 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	150 – 250	3 – 25	330	TT35
	KTNC 250		S = 12	N = 20	**TK040**	**811040**	150 – 225	3 – 25	305	
	NH / NHF 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	155 – 250	3 – 25	330	TT35
	QLC / QLK 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 257	3 – 25	340	TT70
	QLC / QLK 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	160 – 257	3 – 25	340	TT35
	QLC-KS / QLK-KS 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	200 – 257	3 – 25	340	GN16
	QLC-KS / QLK-KS 250		V = 1/16" x 90°	N = 17	**TD040**	**812040**	185 – 257	3 – 25	340	GG20
	F+ 315	315	S = 12	N = 26	**TK050**	**811050**	150 – 318	3 – 25	400	
	FNC 315		S = 12	N = 20	**TK040**	**811040**	150 – 315	3 – 25	395	
	KTG / KTN 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	150 – 315	3 – 25	395	TT35
	KTNC 315		S = 12	N = 20	**TK040**	**811040**	150 – 285	3 – 25	365	
	NH / NHF 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 315	3 – 25	395	TT35
	QLC / QLK 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 320	3 – 25	400	TT35
	QLC / QLK 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 320	3 – 25	400	TT35
	QLC-KS / QLK-KS 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	245 – 320	3 – 25	400	TT35
	QLC-KS / QLK-KS 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	225 – 320	3 – 25	400	TT35
	F+ 400	400	S = 18	N = 30	**TK080**	**811080**	250 – 400	6 – 50	510	
	FNC 400		S = 12	N = 26	**TK060**	**811060**	250 – 388	6 – 50	495	
	KTG / KTN 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	250 – 400	6 – 50	510	GN40
	KTNC 400		S = 12	N = 26	**TK060**	**811060**	250 – 374	6 – 50	480	
	KTNC 400		S = 12	N = 26	**TK060**	**811060**	250 – 374	6 – 50	480	
	NHF 400		V = 1/16" x 90°	N = 21	**TD060**	**812060**	260 – 400	6 – 50	510	*
	NHF 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	260 – 400	6 – 50	510	GN40
	QLC / QLK 400		V = 1,5mm x 60°	N = 21	**TM062**	**813062**	280 – 400	6 – 50	510	TT35
	QLC / QLK 400		V = 1/16" x 90°	N = 21	**TD060**	**812060**	270 – 400	6 – 50	510	*
	QLC / QLK 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	270 – 400	6 – 50	510	GN40
	QLC-KS / QLK-KS 400		V = 1,5mm x 60°	N = 21	**TM062**	**813062**	310 – 400	6 – 50	510	TT35
	QLC-KS / QLK-KS 400		V = 1/16" x 90°	N = 21	**TD060**	**812060**	295 – 400	6 – 50	510	GN25
	F+ 500	500	S = 18	N = 30	**TK080**	**811080**	250 – 500	6 – 50	610	
	FNC 500		S = 18	N = 30	**TK080**	**811080**	250 – 500	6 – 50	610	
	KTNC 500		S = 18	N = 30	**TK080**	**811080**	250 – 459	6 – 50	565	

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Futter-hersteller *chuck manu-facturer*	**Futtertyp** *chuck type*	**Futter-größe** *chuck size* ø mm	**Backenanschluss des Futters** *jaw-connection of the chuck* S mm / V	N mm	**Typbe-zeichnung** *type de-signation*	**Ident-Nr.** *ident-no.*	**Spannbereich [aussen]** *clamping range [external]* min.–max./mm	**Bauteilwand-stärke** *wall thickness of workpiece* min.–max./mm	**Schwing-kreis** *swing* Ø mm	*** Benötigter Nutenstein** ** needed t-nut*
HWR	VD026	260	V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 255	3 – 25	371	TT70
	VK026		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 255	3 – 25	371	TT70
	VK-S 026		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 255	3 – 25	371	TT70
	VM026		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 255	3 – 25	371	TT70
	VT026		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	190 – 264	3 – 25	371	TT70
	VT-S 026		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	190 – 264	3 – 25	371	TT70
	VT-Q 026	264	S = 10	N = 20	**TK030-4**	**811031**	**auf Anfrage** / *on request*			
	VD031	315	V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 315	3 – 25	425	TT70
	VK031		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 315	3 – 25	425	TT70
	VM031		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 315	3 – 25	425	TT70
	VT031		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	215 – 315	3 – 25	425	TT70
	VT-S 031		V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	215 – 315	3 – 25	425	TT70
	VT-Q 031	315	S = 12	N = 20	**TK040-4**	**811041**	**auf Anfrage** / *on request*			
	VL032	325	V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 325	3 – 25	430	TT70
	VD040	400	V = 1,5mm x 60°	N = 21	**TM062-4**	**813162**	280 – 400	6 – 50	566	TT65
	VK040		V = 1,5mm x 60°	N = 21	**TM062-4**	**813162**	280 – 400	6 – 50	566	TT65
	VK-S 040		V = 1,5mm x 60°	N = 21	**TM062-4**	**813162**	280 – 400	6 – 50	566	TT65
	VM040		V = 1,5mm x 60°	N = 21	**TM062-4**	**813162**	280 – 400	6 – 50	566	TT65
	VT040		V = 1,5mm x 60°	N = 21	**TM062-4**	**813162**	280 – 400	6 – 50	566	TT65
	VT-S 040		V = 1,5mm x 60°	N = 21	**TM062-4**	**813162**	280 – 400	6 – 50	566	TT65
	VL042	420	V = 1,5mm x 60°	N = 16	**TM040-4**	**813141**	170 – 420	3 – 25	525	TT70
	VD050	500	V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	280 – 500	6 – 50	660	TT55
	VK050		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	295 – 500	6 – 50	660	TT55
	VK-S 050		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	330 – 500	6 – 50	660	TT55
	VT050		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	335 – 500	6 – 50	660	TT55
	VT-S 050		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	335 – 500	6 – 50	660	TT55
	VL060	600	V = Modul 2	N = 16	**TR060-4**	**816160**	280 – 600	6 – 50	740	GP11
	VD063	630	V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	280 – 630	6 – 50	792	TT55
	VK063		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	320 – 630	6 – 50	792	TT55
	VK-S 063		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	320 – 630	6 – 50	792	TT55
	VT-S 063		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	320 – 630	6 – 50	792	TT55
	VL070	700	V = Modul 2	N = 16	**TR060-4**	**816160**	280 – 700	6 – 50	840	GP11
	VD080	800	V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	290 – 800	6 – 50	961	TT55
	VK080		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	295 – 800	6 – 50	961	TT55

Futter-hersteller *chuck manu-facturer*	Futtertyp *chuck type*	Futter-größe *chuck size* ø mm	Backenanschluss des Futters *jaw-connection of the chuck* S mm / V	N mm	Typbe-zeichnung *type de-signation*	Ident-Nr. *ident-no.*	Spannbereich [aussen] *clamping range [external]* min.–max./mm	Bauteilwand-stärke *wall thickness of workpiece* min.–max./mm	Schwing-kreis *swing* Ø mm	* Benötigter Nutenstein ** needed t-nut*
HWR	VK-S 080	800	V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	295 – 800	6 – 50	961	TT55
	VT-S 080		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	295 – 800	6 – 50	961	TT55
	VL091	910	V = Modul 2	N = 21	**TR080-4**	**816180**	280 – 910	6 – 50	1100	GP13
	VD100	990	V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	290 – 990	6 – 50	1161	TT55
	VK-S 100		V = 3,0mm x 60°	N = 25	**TM080-4**	**813180**	335 – 990	6 – 50	1161	TT55
	VL100		V= Modul 2	N = 21	**TR080-4**	**816180**	280 – 990	6 – 50	1135	GP13
	VL120	1150	V= Modul 2	N = 21	**TR080-4**	**816180**	280 – 1150	6 – 50	1295	GP13
	VL140	1400	V= Modul 2	N = 21	**TR080-4**	**816180**	280 – 1400	6 – 50	1545	GP13
	VL160	1600	V= Modul 2	N = 21	**TR080-4**	**816180**	280 – 1600	6 – 50	1745	GP13
	VL180	1800	V= Modul 2	N = 21	**TR080-4**	**816180**	280 – 1800	6 – 50	1945	GP13
	VL200	2000	V= Modul 2	N = 21	**TR080-4**	**816180**	280 – 2000	6 – 50	2145	GP13
HWR INO Zet®	WT025	250	V = 2,0mm x 60°	N = 12	**TW020**	**815020**	205 – 250	3 – 25	328	GP07
	WT031	315	V = 2,0mm x 60°	N = 12	**TW020**	**815020**	205 – 315	3 – 25	393	GP07
	WT031-4		V = 2,0mm x 60°	N = 12	**TW020-8**	**815121**	240 – 315	3 – 25	393	GP07
	WT038	380	V = 3,5mm x 60°	N = 16	**TW030**	**815030**	325 – 380	6 – 50	484	GP11
	WT040	400	V = 3,5mm x 60°	N = 16	**TW030**	**815030**	325 – 400	6 – 50	504	GP11
	WT045	450	V = 3,5mm x 60°	N = 16	**TW030**	**815030**	325 – 450	6 – 50	554	GP11
	WT050	500	V = 3,5mm x 60°	N = 21	**TW040**	**815040**	325 – 500	6 – 50	604	GP13
	WT050-4		V = 3,5mm x 60°	N = 16	**TW030-8**	**815131**	380 – 500	6 – 50	604	GP11
	WT053	530	V = 3,5mm x 60°	N = 21	**TW040**	**815040**	325 – 530	6 – 50	634	GP13
	WT063	630	V = 3,5mm x 60°	N = 21	**TW040**	**815040**	325 – 630	6 – 50	734	GP13
	WT063-4		V = 3,5mm x 60°	N =16	**TW030-8**	**815131**	380 – 630	6 – 50	734	GP11
	WT070-4	700	V = 3,5mm x 60°	N =16	**TW030-8**	**815131**	390 – 700	6 – 50	804	GP11
	WT080-4	800	V = 3,5mm x 60°	N =21	**TW040-8**	**815141**	390 – 800	6 – 50	904	GP13
Kitagawa	B-208	210	V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP09
	BB-208		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP09
	B-10	254	V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 254	3 – 25	335	TT22
	B-210		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT70
	BB-210		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT70
	N-10		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 254	3 – 25	335	TT22
	B-12	304	V = 1,5mm x 60°	N = 18	**TM050**	**813050**	180 – 304	3 – 25	385	GN78
	B-212		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 304	3 – 25	385	TT40
	N-12		V = 1,5mm x 60°	N = 18	**TM050**	**813050**	185 – 304	3 – 25	385	GN78
	BB-212	315	V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 315	3 – 25	395	TT36
	B-15	381	V = 1,5mm x 60°	N = 22	**TM060**	**813060**	275 – 381	6 – 50	490	GP15
	B-215		V = 1,5mm x 60°	N = 25,5	**TM060**	**813060**	255 – 381	6 – 50	490	X5507
	N-15		V = 1,5mm x 60°	N = 25,5	**TM060**	**813060**	275 – 381	6 – 50	490	X5507

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*** Sondernutenstein**
** special t-nut*

Futter-hersteller *chuck manu-facturer*	**Futtertyp** *chuck type*	**Futter-größe** *chuck size* ø mm	**Backenanschluss des Futters** *jaw-connection of the chuck* S mm / V	N mm	**Typbe-zeichnung** *type de-signation*	**Ident-Nr.** *ident-no.*	**Spannbereich [aussen]** *clamping range [external]* min.–max./mm	**Bauteilwand-stärke** *wall thickness of workpiece* min.–max./mm	**Schwing-kreis** *swing* Ø mm	*** Benötigter Nutenstein** ** needed t-nut*
Kitagawa	B-18	450	V = 1,5mm x 60°	N = 22	**TM060**	**813060**	275 – 450	6 – 50	490	GP15
	BB-218		V = 1,5mm x 60°	N = 25,5	**TM060**	**813060**	275 – 450	6 – 50	560	X5507
	N-21	530	V = 3,0mm x 60°	N = 25	**TM080**	**813080**	330 – 450	6 – 50	560	
	B-21		V = 3,0mm x 60°	N = 25	**TM080**	**813080**	285 – 530	6 – 50	640	
	N-24	610	V = 3,0mm x 60°	N = 25	**TM080**	**813080**	315 – 530	6 – 50	720	
	B-24		V = 3,0mm x 60°	N = 25	**TM080**	**813080**	335 – 610	6 – 50	720	
	NV-24		V = 3,0mm x 60°	N = 25	**TM080**	**813080**	380 – 610	6 – 50	720	
	NV-28	700	V = 3,0mm x 60°	N = 25	**TM080**	**813080**	380 – 700	6 – 50	810	
Röhm	DURO 200	200	S = 10	N = 20	**TK030**	**811030**	150 – 206	3 – 25	290	
	DURO-A 200		S = 10	N = 20	**TK030**	**811030**	150 – 206	3 – 25	290	
	DURO-NC 200		S = 10	N = 20	**TK030**	**811030**	150 – 215	3 – 25	295	
	DURO-NCES 200		S = 10	N = 20	**TK030**	**811030**	150 – 215	3 – 25	295	
	DURO-T 200		S = 10	N = 20	**TK030**	**811030**	150 – 206	3 – 25	290	
	KFD 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GE16
	KFD-HE 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GE16
	KFD-HF 200		V = 1/16“ x 90°	N = 21	**TD046**	**812046**	165 – 200	3 – 25	280	*
	KFD-HS 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GE16
	LVE 200		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GE16
	ZG / ZS 200		S = 7,96	N = 12,69	**TZ030**	**814030**	150 – 200	3 – 25	280	
	DURO-NCSE 210	210	S = 10	N = 20	**TK030**	**811030**	150 – 209	3 – 25	290	
	KFD-HE 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	*
	DURO-NCSE 225	225	S = 10	N = 20	**TK030**	**811030**	150 – 225	3 – 25	305	
	DURO-NCSE 225		S = 10	N = 20	**TK030**	**811030**	150 – 225	3 – 25	305	
	DURO 250	250	S = 12	N = 20	**TK040**	**811040**	150 – 255	3 – 25	335	
	DURO-A 250		S = 12	N = 20	**TK040**	**811040**	150 – 249	3 – 25	330	
	DURO-NC 250		S = 12	N = 20	**TK040**	**811040**	150 – 260	3 – 25	340	
	DURO-NCES 250		S = 12	N = 20	**TK040**	**811040**	150 – 260	3 – 25	340	
	DURO-T 250		S = 12	N = 20	**TK040**	**811040**	150 – 256	3 – 25	340	

Futter-hersteller *chuck manu-facturer*	Futtertyp *chuck type*	Futter-größe *chuck size* ø mm	Backenanschluss des Futters *jaw-connection of the chuck* S mm / V	N mm	Typbe-zeichnung *type de-signation*	Ident-Nr. *ident-no.*	Spannbereich [aussen] *clamping range [external]* min.–max./mm	Bauteilwand-stärke *wall thickness of workpiece* min.–max./mm	Schwing-kreis *swing* Ø mm	* Benötigter Nutenstein ** needed t-nut*
Röhm	KFD 250	250	V = 1/16" x 90°	N = 21	**TD046**	**812046**	160 – WW	3 – 25	330	TT34
	KFD-HE 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT70
	KFD-HE 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 254	3 – 25	335	TT34
	KFD-HS 250		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 250	3 – 25	330	GE21/17
	LVE 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 250	3 – 25	330	TT34
	ZG / ZS 250		S = 12,72	N = 19,03	**TZ040**	**814040**	150 – 250	3 – 25	330	
	DURO-NCSE 265	265	S = 12	N = 20	**TK040**	**811040**	150 – 261	3 – 25	345	
	DURO 315	315	S = 12	N = 26	**TK050**	**811050**	152 – 318	3 – 25	400	
	DURO-NC 315		S = 12	N = 26	**TK050**	**811050**	154 – 320	3 – 25	400	
	DURO-NCES 315		S = 12	N = 20	**TK040**	**811040**	150 – 315	3 – 25	395	
	DURO-NCSE 315		S = 12	N = 26	**TK050**	**811050**	150 – 315	3 – 25	395	
	DURO-T 315		S = 12	N = 26	**TK050**	**811050**	150 – 322	3 – 25	405	
	KFD 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 290	3 – 25	370	TT34
	KFD-HE 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	220 – 315	3 – 25	395	X6115
	KFD-HE 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	210 – 315	3 – 25	395	TT34
	KFD-HS 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 315	3 – 25	395	TT34
	LVE 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	190 – 315	3 – 25	395	TT34
	ZG / ZS 315		S = 12,72	N = 19,03	**TZ043**	**814043**	185 – 315	3 – 25	395	
	ZG / ZS 350	350	S = 12,72	N = 19,03	**TZ060**	**814060**	250 – 350	6 – 50	460	
	DURO 400	400	S = 18	N = 30	**TK080**	**811080**	250 – 400	6 – 50	510	
	DURO-NC 400		S = 18	N = 30	**TK080**	**811080**	250 – 400	6 – 50	510	
	DURO-NCES 400		S = 12	N = 26	**TK060**	**811060**	250 – 375	6 – 50	485	
	DURO-T 400		S = 18	N = 30	**TK080**	**811080**	250 – 407	6 – 50	515	
	KFD 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	265 – 400	6 – 50	510	GE40
	KFD-HE 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 400	6 – 50	510	GE40
	KFD-HS 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	280 – 400	6 – 50	510	GE40
	LVE 420		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	315 – 400	6 – 50	510	GE40
	LVE 480		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	365 – 400	6 – 50	510	GE40
	ZG / ZS 350		S = 12,72	N = 19,03	**TZ060**	**814060**	250 – 400	6 – 50	510	
	ZG / ZS 350		S = 12,72	N = 19,03	**TZ060**	**814060**	250 – 400	6 – 50	510	
	ZG / ZS 400		S = 12,72	N = 19,03	**TZ060**	**814060**	250 – 350	6 – 50	460	
	ZG / ZS 400		S = 12,72	N = 19,03	**TZ060**	**814060**	250 – 400	6 – 50	510	
	DURO 500	500	S = 18	N = 30	**TK080**	**811080**	250 – 500	6 – 50	610	
	DURO-NC 500		S = 18	N = 30	**TK080**	**811080**	250 – 500	6 – 50	610	
	DURO-T 500		S = 18	N = 30	**TK080**	**811080**	250 – 507	6 – 50	615	
	ZG / ZS 500		S = 12,72	N = 19,03	**TZ063**	**814063**	250 – 500	6 – 50	610	
	DURO-NCSE 630	630	S = 18	N = 30	**TK080**	**811080**	250 – 583	6 – 50	690	

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Futter-hersteller *chuck manu-facturer*	**Futtertyp** *chuck type*	**Futter-größe** *chuck size* ø mm	**Backenanschluss des Futters** *jaw-connection of the chuck* S mm / V	N mm	**Typbe-zeichnung** *type de-signation*	**Ident-Nr.** *ident-no.*	**Spannbereich [aussen]** *clamping range [external]* min.–max./mm	**Bauteilwand-stärke** *wall thickness of workpiece* min.–max./mm	**Schwing-kreis** *swing* Ø mm	*** Benötigter Nutenstein** ** needed t-nut*
Samchully	HC-08	210	V = 1,5mm x 60°	N = 14	**TM030**	**813030**	155 – 210	3 – 25	290	GP08
	HCH-08		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP08
	HH-208 / MH-208		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	155 – 210	3 – 25	290	GP09
	HS-08		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP09
	HC-10	254	V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 254	3 – 25	335	TT22
	HCH-10		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 254	3 – 25	335	TT22
	HH-210 / MH-210		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	195 – 254	3 – 25	335	TT70
	HS-10		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	160 – 254	3 – 25	335	TT70
	HC-12	304	V = 1,5mm x 60°	N = 18	**TM050**	**813050**	185 – 304	3 – 25	385	GN78
	HCH-12		V = 1,5mm x 60°	N = 18	**TM050**	**813050**	180 – 304	3 – 25	385	GN78
	HS-12		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	185 – 304	3 – 25	385	TT40
	HH-212 / MH-212	315	V = 1,5mm x 60°	N = 21	**TM052**	**813052**	205 – 315	3 – 25	395	TT40
	HC-15	381	V = 1,5mm x 60°	N = 25,5	**TM060**	**813060**	275 – 381	6 – 50	490	X5507
	HCH-15 / HCH-18		V = 1,5mm x 60°	N = 22	**TM060**	**813060**	275 – 381	6 – 50	490	GP15
Schunk	ROTA G 200	200	S = 10	N = 20	**TK030**	**811030**	153 – 206	3 – 25	290	
	ROTA S plus 200		S = 10	N = 20	**TK030**	**811030**	150 – 206	3 – 25	290	
	ROTA NC 210	210	V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP08
	ROTA NC 210		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	ROTA NCF 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP08
	ROTA NCF 210		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	ROTA NCK 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP09
	ROTA NCK plus 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GP09
	ROTA NCK plus 210		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	ROTA NCO 210		V = 1/16“ x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	ROTA THW 210		S = 10	N = 20	**TK030**	**811030**	150 – 210	3 – 25	290	

Futter-hersteller *chuck manu-facturer*	Futtertyp *chuck type*	Futter-größe *chuck size* ø mm	Backenanschluss des Futters *jaw-connection of the chuck* S mm / V	N mm	Typbe-zeichnung *type de-signation*	Ident-Nr. *ident-no.*	Spannbereich [aussen] *clamping range [external]* min.–max./mm	Bauteilwand-stärke *wall thickness of workpiece* min.–max./mm	Schwing-kreis *swing* Ø mm	* Benötigter Nutenstein * *needed t-nut*
Schunk	ROTA NC plus 215	215	V = 1/16" x 90°	N = 17	**TD040**	**812040**	160 – 215	3 – 25	295	GF212
	ROTA NC plus 215		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	165 – 215	3 – 25	295	GP09
	ROTA NCD 215		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 215	3 – 25	295	GG20
	ROTA NCD 215		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 215	3 – 25	295	GP09
	ROTA NCF plus 215		V = 1/16" x 90°	N = 17	**TD040**	**812040**	160 – 215	3 – 25	295	GF212
	ROTA NCF plus 215		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	165 – 215	3 – 25	295	GP09
	ROTA THW plus 215		S = 10	N = 20	**TK030**	**811030**	150 – 215	3 – 25	295	
	ROTA NCW 225	225	S = 10	N = 20	**TK030**	**811030**	150 – 225	3 – 25	305	
	ROTA G 250	250	S = 12	N = 20	**TK040**	**811040**	150 – 256	3 – 25	340	
	ROTA NC 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT22
	ROTA NC 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 254	3 – 25	335	TT46
	ROTA NCD 250		V = 1,5mm x 60°	N = 21	**TM040**	**813040**	165 – 250	3 – 25	330	TT22
	ROTA NCD 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	155 – 250	3 – 25	330	TT35
	ROTA NCF 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT22
	ROTA NCF 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 254	3 – 25	335	TT46
	ROTA NCK 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	150 – 254	3 – 25	335	TT70
	ROTA NCK plus 250		V = 1/16" x 90°	N = 17	**TD040**	**812040**	160 – 254	3 – 25	335	GF212
	ROTA NCK plus 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	165 – 254	3 – 25	335	TT70
	ROTA S plus 250		S = 12	N = 20	**TK040**	**811040**	150 – 256	3 – 25	340	
	ROTA THW 250		S = 12	N = 20	**TK040**	**811040**	150 – 250	3 – 25	330	
	ROTA NCD 255	255	V = 1,5mm x 60°	N = 21	**TM040**	**813040**	160 – 255	3 – 25	335	TT70
	ROTA NCD 255		V = 1/16" x 90°	N = 21	**TD046**	**812046**	155 – 255	3 – 25	335	TT35
	ROTA NC plus 260	260	V = 1,5mm x 60°	N = 16	**TM040**	**813040**	180 – 260	3 – 25	340	TT70
	ROTA NC plus 260		V = 1/16" x 90°	N = 21	**TD046**	**812046**	180 – 254	3 – 25	335	TT46
	ROTA NCF plus 260		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	180 – 260	3 – 25	340	TT70
	ROTA NCF plus 260		V = 1/16" x 90°	N = 21	**TD046**	**812046**	170 – 260	3 – 25	340	TT46
	ROTA NCO 260		V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 254	3 – 25	335	TT46
	ROTA THW plus 260		S = 12	N = 20	**TK040**	**811040**	150 – 260	3 – 25	340	
	ROTA NCW 265	265	S = 12	N = 20	**TK040**	**811040**	150 – 256	3 – 25	340	
	ROTA G 315	315	S = 12	N = 20	**TK040**	**811040**	150 – 322	3 – 25	405	
	ROTA NC 315-86		V = 1,5mm x 60°	N = 18	**TM050**	**813050**	200 – 315	3 – 25	395	GN78
	ROTA NC 315-86		V = 1/16" x 90°	N = 21	**TD046**	**812046**	195 – 315	3 – 25	395	TT35
	ROTA NC plus 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 315	3 – 25	395	GF34
	ROTA NC plus 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	195 – 315	3 – 25	395	TT46

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Futter-hersteller *chuck manu-facturer*	**Futtertyp** *chuck type*	**Futter-größe** *chuck size* ø mm	**Backenanschluss des Futters** *jaw-connection of the chuck* S mm / V	N mm	**Typbe-zeichnung** *type de-signation*	**Ident-Nr.** *ident-no.*	**Spannbereich [aussen]** *clamping range [external]* min.–max./mm	**Bauteilwand-stärke** *wall thickness of workpiece* min.–max./mm	**Schwing-kreis** *swing* Ø mm	*** Benötigter Nutenstein** ** needed t-nut*
Schunk	ROTA NCD 315	315	V = 1/16" x 90°	N = 21	**TD046**	**812046**	180 – 315	3 – 25	395	TT35
	ROTA NCD 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 315	3 – 25	395	TT35
	ROTA NCF 315		V = 1,5mm x 60°	N = 18	**TM050**	**813050**	195 – 315	3 – 25	395	GN78
	ROTA NCF 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	190 – 315	3 – 25	395	TT35
	ROTA NCF plus 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	195 – 315	3 – 25	395	TT40
	ROTA NCF plus 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	195 – 315	3 – 25	395	TT46
	ROTA NCK plus 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	190 – 304	3 – 25	385	TT40
	ROTA NCK plus 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	185 – 304	3 – 25	385	TT46
	ROTA NCO 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	185 – 315	3 – 25	395	TT46
	ROTA NCW 315		S = 12	N = 20	**TK040**	**811040**	150 – 303	3 – 25	385	
	ROTA S plus 315		S = 12	N = 26	**TK050**	**811050**	150 – 323	3 – 25	405	
	ROTA THW 315		S = 12	N = 20	**TK040**	**811040**	150 – 303	3 – 25	385	
	ROTA THW plus 315		S = 12	N = 20	**TK040**	**811040**	150 – 315	3 – 25	395	
	ROTA G 400	400	S = 12	N = 26	**TK060**	**811060**	250 – 394	6 – 50	500	
	ROTA NC 400		V = 1,5mm x 60°	N = 22	**TM060**	**813060**	265 – 400	6 – 50	510	GP15
	ROTA NC 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 400	6 – 50	510	GN40
	ROTA NCD 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	270 – 400	6 – 50	510	GN40
	ROTA NCF 400		V = 1,5mm x 60°	N = 22	**TM060**	**813060**	265 – 400	6 – 50	510	GP15
	ROTA NCF 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 390	6 – 50	500	GN40
	ROTA NCO 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	260 – 400	6 – 50	510	GE40
	ROTA S plus 400		S = 18	N = 30	**TK080**	**811080**	250 – 408	6 – 50	515	
	ROTA THW 400		S = 12	N = 26	**TK060**	**811060**	250 – 376	6 – 50	485	
	ROTA THW plus 400		S = 12	N = 26	**TK060**	**811060**	250 – 376	6 – 50	485	
	ROTA G 500	500	S = 18	N = 30	**TK080**	**811080**	250 – 507	6 – 50	615	
	ROTA S plus 500		S = 18	N = 30	**TK080**	**811080**	250 – 507	6 – 50	615	
	ROTA THW plus 500		S = 18	N = 30	**TK080**	**811080**	250 – 463	6 – 50	570	

Futter-hersteller *chuck manu-facturer*	Futtertyp *chuck type*	Futter-größe *chuck size* ø mm	Backenanschluss des Futters *jaw-connection of the chuck* S mm / V	N mm	Typbe-zeichnung *type de-signation*	Ident-Nr. *ident-no.*	Spannbereich [aussen] *clamping range [external]* min.–max./mm	Bauteilwand-stärke *wall thickness of workpiece* min.–max./mm	Schwing-kreis *swing* Ø mm	* Benötigter Nutenstein * *needed t-nut*
Schunk	ROTA G 630	630	S = 18	N = 30	**TK080**	**811080**	250 – 639	6 – 50	745	
	ROTA THW 630		S = 18	N = 30	**TK080**	**811080**	250 – 586	6 – 50	695	
	ROTA THW plus 630		S = 18	N = 30	**TK080**	**811080**	250 – 583	6 – 50	690	
	ROTA NCO 630		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	260 – 630	6 – 50	740	GN40
	ROTA NCO 800	800	V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	365 – 800	6 – 50	910	GN40
SMW Autoblok	HFK / HFKS 200-48	200	V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GG20
	HFK / HFKS 200-66		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 200	3 – 25	280	GG20
	AL-D 210	210	V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	AL-M 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	155 – 210	3 – 25	290	GF213
	AN-D 210		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	AN-M 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GF213
	BB-D 210		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	BB-M 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	155 – 210	3 – 25	290	GF213
	BH-D 210		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	BHD-FC 210		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	BH-M 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GF213
	BHM-FC 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GF213
	HFKN-D 210		V = 1/16" x 90°	N = 17	**TD040**	**812040**	150 – 210	3 – 25	290	GF212
	HFKN-M 210		V = 1,5mm x 60°	N = 14	**TM030**	**813030**	150 – 210	3 – 25	290	GF213
	HG-F 210		S = 10	N = 20	**TK030**	**811030**	150 – 198	3 – 25	280	
	HG-N 210		S = 10	N = 20	**TK030**	**811030**	150 – 201	3 – 25	285	
	KNCS-N 210		S = 10	N = 20	**TK030**	**811030**	150 – 215	3 – 25	295	
	KNCS-N 225	225	S = 10	N = 20	**TK030**	**811030**	150 – 225	3 – 25	310	
	AL-D 250	250	V = 1/16" x 90°	N = 21	**TD046**	**812046**	170 – 254	3 – 25	335	TT46
	AL-M 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	175 – 254	3 – 25	335	TT24
	AN-D 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 254	3 – 25	335	TT46
	AN-M 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT24
	BB-D 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 254	3 – 25	335	TT46
	BB-M 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	180 – 254	3 – 25	335	TT24
	BH-D 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 254	3 – 25	335	TT46
	BHD-FC 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 250	3 – 25	330	TT46
	BH-M 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 254	3 – 25	335	TT24
	BHM-FC 250		V = 1,5mm x 60°	N = 16	**TM040**	**813040**	170 – 250	3 – 25	330	TT24
	HFK / HFKS 250		V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 250	3 – 25	330	TT35

INOTop®

Futterspezifische Daten
Chuck specific data

Technische Daten siehe Seite 130-131
Technical data see page 130-131

Futter-hersteller *chuck manufacturer*	**Futtertyp** *chuck type*	**Futter-größe** *chuck size* ø mm	**Backenanschluss des Futters** *jaw-connection of the chuck* S mm / V	N mm	**Typbe-zeichnung** *type de-signation*	**Ident-Nr.** *ident-no.*	**Spannbereich [aussen]** *clamping range [external]* min.–max./mm	**Bauteilwand-stärke** *wall thickness of workpiece* min.–max./mm	**Schwing-kreis** *swing* Ø mm	*** Benötigter Nutenstein** ** needed t-nut*
SMW Autoblok	HFKN-D 260	260	V = 1/16" x 90°	N = 21	**TD046**	**812046**	165 – 254	3 – 25	335	TT46
	HFKN-M 260		V = 1,5mm x 60°	N = 21	**TM040**	**813040**	170 – 260	3 – 25	340	*
	HG-F 260		S = 12	N = 20	**TK040**	**811040**	150 – 249	3 – 25	330	
	HG-N 260		S = 12	N = 20	**TK040**	**811040**	150 – 249	3 – 25	330	
	KNCS-N 260		S = 12	N = 20	**TK040**	**811040**	150 – 258	3 – 25	340	
	HFK / HFKS 270	270	V = 1/16" x 90°	N = 21	**TD046**	**812046**	175 – 270	3 – 25	350	TT35
	KNCS-N 275	275	S = 12	N = 20	**TK040**	**811040**	150 – 273	3 – 25	355	
	AL-D 315	315	V = 1/16" x 90°	N = 21	**TD046**	**812046**	185 – 315	3 – 25	395	TT46
	AL-M 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	190 – 315	3 – 25	395	GF34
	AN-D 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	180 – 315	3 – 25	395	TT46
	AN-M 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	185 – 315	3 – 25	395	GF34
	BB-D 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	225 – 315	3 – 25	395	TT46
	BB-M 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	230 – 315	3 – 25	395	GF34
	BHD-FC 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	195 – 315	3 – 25	395	TT46
	BH-M 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	200 – 315	3 – 25	395	GF34

* Sondernutenstein
** special t-nut*

Futter-hersteller *chuck manufacturer*	Futtertyp *chuck type*	Futter-größe *chuck size* ø mm	Backenanschluss des Futters *jaw-connection of the chuck* S mm / V	N mm	Typbe-zeichnung *type de-signation*	Ident-Nr. *ident-no.*	Spannbereich [aussen] *clamping range [external]* min.–max./mm	Bauteilwand-stärke *wall thickness of workpiece* min.–max./mm	Schwing-kreis *swing* Ø mm	* Benötigter Nutenstein ** needed t-nut*
SMW Autoblok	BHM-FC 315	315	V = 1,5mm x 60°	N = 21	**TM052**	**813052**	200 – 315	3 – 25	395	GF34
	HB-D 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	190 – 315	3 – 25	395	*
	HFK / HFKS 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	185 – 315	3 – 25	395	TT35
	HFKN-D 315		V = 1/16" x 90°	N = 21	**TD046**	**812046**	205 – 315	3 – 25	395	TT46
	HFKN-M 315		V = 1,5mm x 60°	N = 21	**TM052**	**813052**	210 – 315	3 – 25	395	GF34
	HG-F 315		S = 12	N = 26	**TK050**	**811050**	150 – 315	3 – 25	395	
	HG-N 315		S = 12	N = 20	**TK040**	**811040**	150 – 305	3 – 25	385	
	KNCS-N 315		S = 12	N = 20	**TK040**	**811040**	150 – 315	3 – 25	395	
	KNCS-N 325	325	S = 12	N = 20	**TK040**	**811040**	150 – 324	3 – 25	405	
	KNCS-N 340	340	S = 12	N = 20	**TK040**	**811040**	165 – 340	3 – 25	420	
	AN-D 400	400	V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 390	6 – 50	500	GE40
	AN-M 400		V = 1,5mm x 60°	N = 22	**TM060**	**813060**	285 – 390	6 – 50	500	X7960
	BH-D 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 390	6 – 50	500	GE40
	BHD-FC 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 390	6 – 50	500	GE40
	BH-M 400		V = 1,5mm x 60°	N = 22	**TM060**	**813060**	285 – 390	6 – 50	500	X7960
	HFK / HFKS 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	285 – 400	6 – 50	510	GN40
	HFKN-D 400		V = 3/32" x 90°	N = 25,5	**TD066**	**812066**	250 – 400	6 – 50	510	GN40
	HG-F 400		S = 18	N = 30	**TK080**	**811080**	250 – 400	6 – 50	510	
	HG-N 400		S = 12	N = 26	**TK060**	**811060**	250 – 372	6 – 50	480	
	KNCS-N 400		S = 12	N = 26	**TK060**	**811060**	250 – 400	6 – 50	510	
	KNCS-N 400		S = 12	N = 26	**TK060**	**811060**	250 – 400	6 – 50	510	
	HG-N 500	500	S = 18	N = 30	**TK080**	**811080**	250 – 462	6 – 50	570	
	KNCS-N 500		S = 18	N = 30	**TK080**	**811080**	250 – 492	6 – 50	600	
	HG-N 630	630	S = 18	N = 30	**TK080**	**811080**	262 – 622	6 – 50	730	
	KNCS-N 630		S = 18	N = 30	**TK080**	**811080**	250 – 583	6 – 50	690	

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Allgemeine technische Daten
General technical data

INOTop®	Ident-Nr. *ident-no.*	Bauteilwandstärke *wall thickness of workpiece* W min.–max./mm	Einspann-tiefe *clamping depth* T mm	Breite *width* B mm	Höhe *height* H mm	Länge *length* L mm	max. Anzugs-moment *max. tightening torque* Nm	max. Spannkraft/ Backe *max clamping force/jaw* kN	Backenanschluss *jaw-connection* S mm / V	N mm	Gewicht/ Satz *weight/ set* kg
TM030	**813030**	3 – 25	10	47	60	103,5	30	25	V = 1,5mm x 60°	N = 14	4,3
TM040	**813040**	3 – 25	10	47	60	103,5	30	25	V = 1,5mm x 60°	N = 16	4,3
TM050	**813050**	3 – 25	10	47	60	103,5	30	25	V = 1,5mm x 60°	N = 18	4,2
TM052	**813052**	3 – 25	10	47	60	103,5	30	25	V = 1,5mm x 60°	N = 21	4,2
TM060	**813060**	6 – 50	20	66	84	160	40	30	V = 1,5mm x 60°	N = 22	12
TM062	**813062**	6 – 50	20	66	84	160	40	30	V = 1,5mm x 60°	N = 21	12
TM080	**813080**	6 – 50	20	66	84	160	40	30	V = 3,0mm x 60°	N = 25	12
TD040	**812040**	3 – 25	10	47	60	103	30	25	V = 1/16“ x 90°	N = 17	4,3
TD046	**812046**	3 – 25	10	47	60	103	30	25	V = 1/16“ x 90°	N = 21	4,2
TD060	**812060**	6 – 50	20	66	84	160	40	30	V = 1/16“ x 90°	N = 21	12,3
TD063	**812063**	6 – 50	20	66	84	160	40	30	V = 3/32“ x 90°	N = 20	12,3
TD066	**812066**	6 – 50	20	66	84	160	40	30	V = 3/32“ x 90°	N = 25,5	12,4
TK030	**811030**	3 – 25	10	47	55,5	104	30	25	S = 20	N = 10	4,2
TK040	**811040**	3 – 25	10	47	55,5	104	30	25	S = 20	N = 12	4,1
TK050	**811050**	3 – 25	10	47	55,5	104	30	25	S = 26	N = 12	4,1
TK060	**811060**	6 – 50	20	66	79,5	160	40	30	S = 26	N = 12	12,9
TK080	**811080**	6 – 50	20	66	79,5	160	40	30	S = 30	N = 18	12,5

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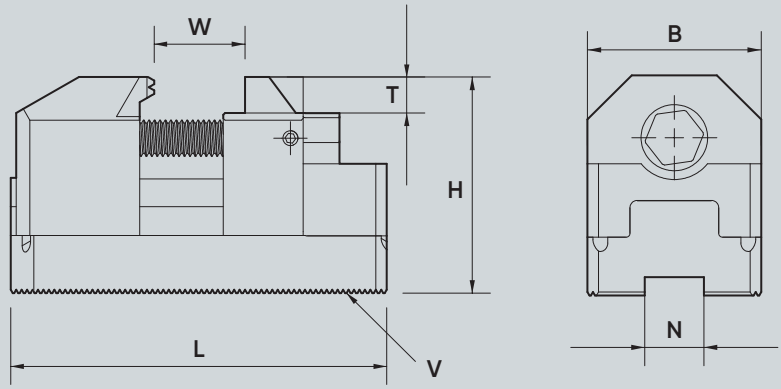
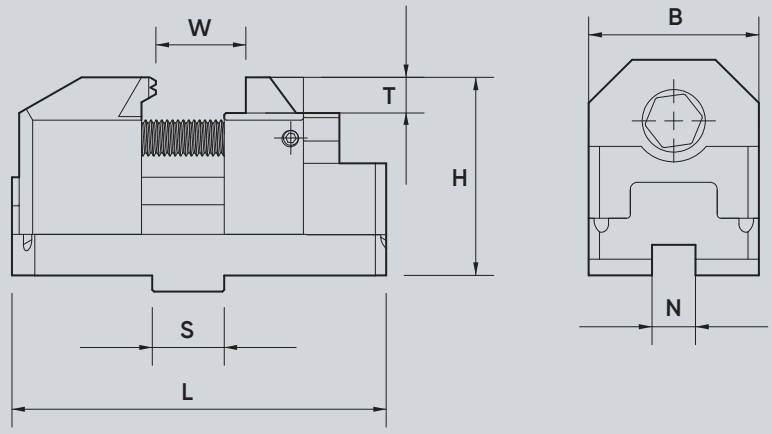
Spitzverzahnung
Serration



Kreuzversatz
Tongue and groove



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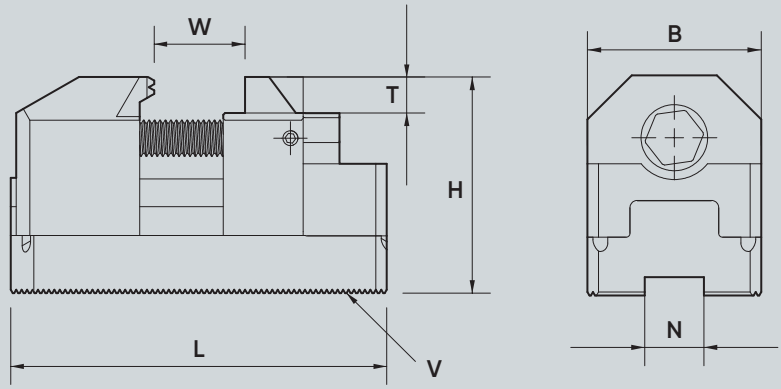
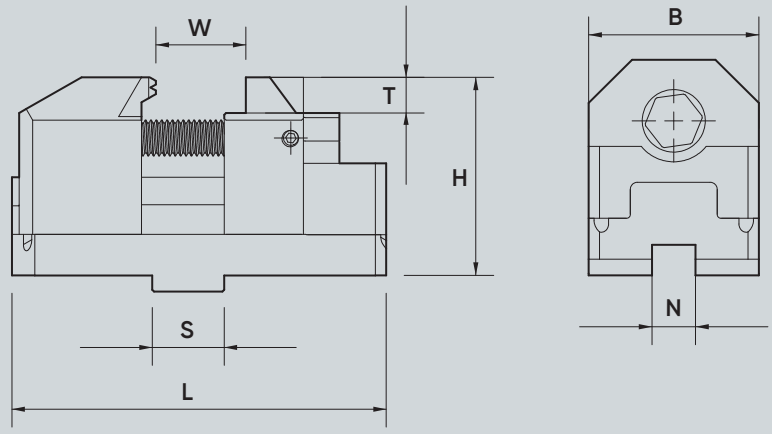
Spitzverzahnung
Serration



Kreuzversatz
Tongue and groove



INOTop®	Ident-Nr. *ident-no.*	Bauteilwandstärke *wall thickness of workpiece* W min.–max./mm	Einspann-tiefe *clamping depth* T mm	Breite *width* B mm	Höhe *height* H mm	Länge *length* L mm	max. Anzugs-moment *max. tightening torque* Nm	max. Spannkraft/ Backe *max clamping force/jaw* kN	Backenanschluss *jaw-connection* S mm / V	N mm	Gewicht/ Satz *weight/ set* kg
TZ030	814030	3 – 25	10	47	55,5	104	30	25	S = 12,68	N = 7,94	4,2
TZ031	814031	3 – 25	10	47	55,5	104	30	25	S = 12,68	N = 7,94	4,2
TZ040	814040	3 – 25	10	47	55,5	104	30	25	S = 19,03	N = 12,7	4,1
TZ043	814043	3 – 25	10	47	55,5	122	30	25	S = 19,03	N = 12,7	4,5
TZ060	814060	6 – 50	20	66	79,5	160	40	30	S = 19,03	N = 12,7	12,7
TZ063	814063	6 – 50	20	66	79,5	160	40	30	S = 19,03	N = 12,7	12,2
TW020	815020	3 – 25	10	47	60	160	30	25	V = 2,0mm x 60°	N = 12	4,4
TW030	815030	6 – 50	20	66	84	160	40	30	V = 3,5mm x 60°	N = 16	13
TW040	815040	6 – 50	20	66	84	160	40	30	V = 3,5mm x 60°	N = 21	12,8
TM040-4	813141	3 – 25	10	47	60	103,5	30	25	V = 1,5mm x 60°	N = 16	5,7
TM052-4	813053	3 – 25	10	47	60	103,5	30	25	V = 1,5mm x 60°	N = 21	5,6
TM062-4	813162	6 – 50	20	66	84	160	40	30	V = 1,5mm x 60°	N = 21	16,1
TM066-4	813166	6 – 50	20	66	84	160	40	30	V = 1,5mm x 60°	N = 16	18
TM080-4	813180	6 – 50	20	66	84	160	40	30	V = 3,0mm x 60°	N = 25	16
TK030-4	811031	3 – 25	10	47	55,5	104	30	25	S = 20	N = 10	5,6
TK040-4	811041	3 – 25	10	47	55,5	104	30	25	S = 20	N = 12	5,4
TR060-4	816160	6 – 50	20	66	84	160	40	30	V = Modul 2	N = 16	17,6
TR080-4	816180	6 – 50	20	66	84	160	40	30	V = Modul 2	N = 21	16,8
TW020-8	815121	3 – 25	10	47	60	160	30	25	V = 2,0mm x 60°	N = 12	5,9
TW030-8	815131	6 – 50	20	66	84	160	40	30	V = 3,5mm x 60°	N = 16	17,4
TW040-8	815141	6 – 50	20	66	84	160	40	30	V = 3,5mm x 60°	N = 21	17,1