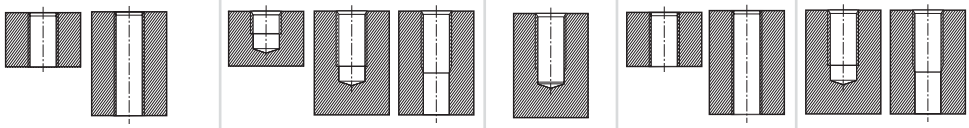
Application recommendations for taps

Material examples	for universal applications in materials <1100 MPa, e. g. : structural steels, free-cutting steels case hardened steels, heat-treatable steels nitriding steels spheroidal graphite cast iron						for synchro machining universal applications in materials up to 1200 MPa	
Hole type								
Tool material	HSS-E						HSS-E-PM	HSS-E-PM
Type	Produktiv N		Intensiv N		Intensiv N		Produktiv-Synchro	Intensiv-Synchro
Form	B		C		E		B	C
Surface finish	steam temp.	TiN	steam temp.	TiN	br		TiCN	TiCN
v_c m/min	**≤ 15**	**≤ 20**	**≤ 15**	**≤ 20**	**≤ 15**		**≤ 20**	**≤ 20**

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range/Page						
M	**DIN 371**	**ISO 2 6H**	73033 M3 - M10 366	63033 M3 - M10 365	73046 M3 - M10 372	63046 M3 - M10 371	73047 M4 - M10 375	53053 M2 - M10 362	
		6HX							53050 M5 - M10 368
	DIN 376	**ISO 2 6H**	73038 M12 - M24 367		73048 M12 - M24 374	63048 M12 - M20 373		53054 M12 - M20 363	
		6HX							53051 M12 - M20 369
MF	**DIN 374**	**ISO 2 6H**	73183 M6x0.75 - M20x1.5 439		73187 M6x0.75 - M20x1.5 440			53055 M8x1 - M16x1.5 437	
		6HX							53052 M8x1 - M20x1.5 438
UNC	**DIN ~ 371**	**2B**	73308 Nr.4-40 - 3/8-16 449		73322 Nr.4-40 - 3/8-16 451				
	DIN ~ 376	**2B**	73309 1/2-13 - 3/4-10 450		73323 1/2-13 - 3/4-10 452				
UNF	**DIN ~ 374**	**2B**	73310 Nr.10-32 - 5/8-18 459		73324 Nr.10-32 - 5/8-18 460				
G	**DIN 5156**	**–**	73321 G1/8 - G1 464		73325 G1/8 - G1 465				

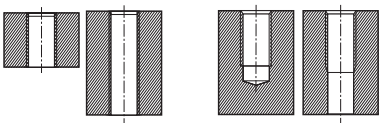
STOCK ProduktivN-X

Through hole tap, form B
with spiral point, HSS-E, AlTiZrN

STOCK IntensivN-X

Blind hole tap, form C
45° helix, HSS-E, TiAlN

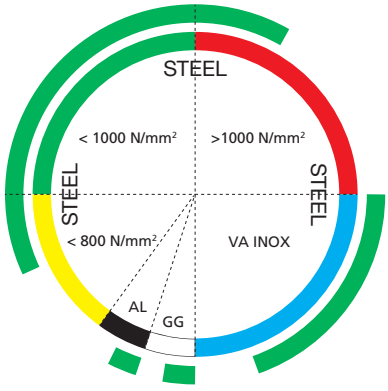
universal applications
steels up to 1300 Mpa
stainless- and acid resistant steels,
cast, nonferrous metals



HSS-E	HSS-E
ProduktivN-X	IntensivN-X
B	C
AlTiZrN	TiAlN
≤ 20	**≤ 20**
Catalog no./Ø-range/Page	
53733 M2 - M10 364	53746 M2 - M10 370
53733 M12 - M30 364	53746 M12 - M30 370
53778 MF 6x0.75 - MF 24x1.5 436	53780 MF 6x0.75 - MF 24x1.5 435
53787 G1/16 - G1 471	53788 G1/16 - G1 466

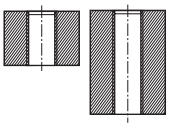
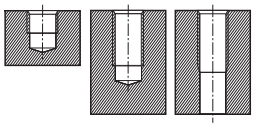
An all-rounder for the production of internal threads with an extremely wide range of application. For the machining of carbon, case-hardening, heat treatable, stainless and acid-resistant steels as well as cast materials and diverse non-ferrous metals in a tensile strength range from < 600 N/mm² to 1300 N/mm² with efficient chip evacuation, long tool life and high dimensional accuracy for the threads produced.

The innovative cutting edge geometry in combination with the controlled application of a wear-resistant TiAlN based coating and compliance with internal thread tolerances provides high quality threads of the correct size. The production of threads to manufacturing tolerance 6HX is achieved with far more economic efficiency thanks to the increased performance and for even wider universal applications and complete process reliability



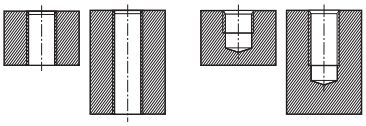
Application range

Application recommendations for taps

Material examples	for stainless- and acid resistant steels e. g. : sulphured stainless steels austenitic stainless steels martensitic stainless steels ferritic stainless steels				for stainless- and acid resistant steels e. g. : sulphured stainless steels austenitic stainless steels martensitic stainless steels ferritic stainless steels			
Hole type								
Tool material	HSS-E		HSS-E-PM		HSS-E		HSS-E-PM	
Type	Produktiv HD				Intensiv HD			
Form	B				C			
Surface finish	steam temp.	TiN	bright	TiCN	steam temp.	bright	TiCN	TiN
v_c m/min	**≤ 15**	**≤ 20**	**≤ 15**	**≤ 20**	**≤ 15**	**≤ 15**	**≤ 20**	**≤ 20**

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range/Page							
M	**DIN 371**	**ISO 2 6H**	73176 M3 - M10 414	63176 M3 - M10 413	73641 M3 - M10 415	53641 M3 - M10 412	73660 M3 - M10 422	73662 M3 - M10 423	53662 M3 - M10 420	63662 M3 - M10 421
		6HX								
	DIN 376	**ISO 2 6H**	73177 M12 - M20 418	63177 M12 - M16 417	73643 M12 - M22 419	53643 M12 - M16 416	73659 M12 - M20 426	73665 M12 - M24 427	53665 M12 - M16 424	63665 M12 - M16 425
		6HX								
MF	**DIN 374**	**ISO 2 6H**	73178 M5x0.5 - M20x1.5 446				73180 M8x1 - M20x1.5 447			
UNC	**DIN ~ 371**	**2B**	73297 Nr.4-40 - 3/8-16 453				73304 Nr.4-40 - 3/8-16 455			
	DIN ~ 376	**2B**	73298 1/2-13 - 1-8 454				73305 1/2-13 - 3/4-10 456			
UNF	**DIN ~ 374**	**2B**	73299 Nr.10-32- 5/8-18 461				73306 Nr.10-32- 3/4-16 462			
G	**DIN 5156**	**–**	73300 G1/8 - G1 468				73288 G1/8 - G1 469			
NPT	**Stock std.**	**–**	73293 1/8 - 3/4 463							

for Titanium and Titanium alloys



HSS-E-PM	
Produktiv HDX	Intensiv HDX
B	C
TiCN	TiCN
≤ 20	**≤ 20**
Catalog no./Ø-range/Page	
53667 M3 - M10 377	53666 M3 - M10 382
53667 M12 - M16 377	53666 M12 - M16 382

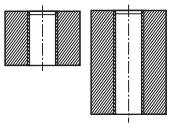
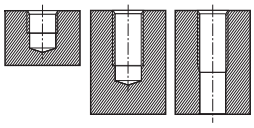
Stable in difficult-to-machine materials

Especially for the process reliable machining of Titanium and Titanium alloys the taps type HDX complete our tap range.

Advantages:

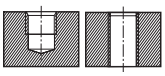
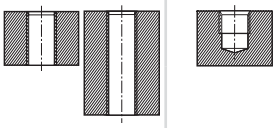
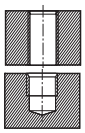
- absolutely accurate threads
- optimal chip evacuation
- no jamming
- low wear
- long tool life
- maximum process reliability

Application recommendations for taps

Material examples			for high tensile steels ≥ 1100…1400 MPa, e.g. : heat-treatable steels alloyed cold work tool steels high speed tool steels				for high tensile steels ≥ 1100…1400 MPa, e.g. : heat-treatable steels alloyed cold work tool steels high speed tool steels			
Hole type										
Tool material			HSS-E		HSS-E-PM			HSS-E			HSS-E-PM
Type			Produktiv H					Intensiv H			HR 15
Form			B					C			C
Surface finish			nitrided	TiCN	bright	TiN	TiCN	bright	TiCN	TiN	bright
v_c m/min			**≤ 15**	**≤ 20**	**≤ 15**	**≤ 20**	**≤ 20**	**≤ 15**	**≤ 20**	**≤ 20**	**≤ 15**
Thread type	Dimensions to DIN 2184-1	Tolerance zone	**Catalog no./Ø-range/Page**								
M	**DIN 371**	**ISO 2 6H**	73642 M2 - M10 401	53642 M2 - M10 398	73640 M3 - M10 400	63641 M3 - M10 399	53640 M3 - M10 397	73661 M3 - M10 407	53661 M2 - M10 404	63674 M3 - M10 405	73619 M3 - M10 406
		6HX									
	DIN 376	**ISO 2 6H**	73645 M12 - M20 403			63643 M12 - M20 402		73664 M12 - M20 409		63675 M12 - M20 408	73666 M12 - M20 410
		6HX					53640 M12 - M16 397		53661 M12 - M16 404		
	Stock std.	**ISO 2 6H**									
MF	**DIN 374**	**ISO 2 6H**	73646 M3x0.35 - M22x1.5 445								
UNC	**DIN ~ 371**	**2B**									
	DIN ~ 376	**2B**									
UNF	**DIN ~ 374**	**2B**									
G	**DIN 5156**	**–**									

In difficult cases.

With taps type HX and HCX STOCK offers special solutions for the machining of high-tensile materials. Their special hard coating adds high wear resistance for the high requirements of hard machining.

for high tensile materials ≥ 1400 MPa	for high tensile special alloys ≥ 1400 MPa, e. g. : Inconel		for hardened steels 54-62 HRC
			
HSS-E-PM	HSS-E-PM		Solid carbide
HCX	Produktiv HX	Intensiv HX	H
C	B	B	D
TiCN	AlTiN	AlTiN	TiCN
≤ 20	**≤ 20**	**≤ 20**	**≤ 2**
Catalog no./Ø-range/Page			
53670 M5 - M10 383	53669 M3 - M10 376	53668 M3 - M10 381	
	53669 M12 - M16 376	53668 M12 - M16 381	
			63010 M3 - M12 411

Application range **HX**:

- Inconel
- Hastelloy
- Waspalloy
- Nickel based alloys

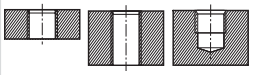
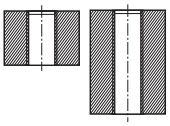
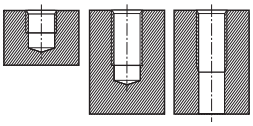
Application range **HCX**:

- tool steels
- all. heat-treatable steels
- high speed steels
- malleable cast iron
- cast w. vermicular graphite
- cast w. spheroidal graphite
- bronze, hard
- special materials, hard
- Ampco >21

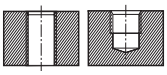
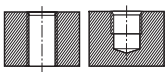
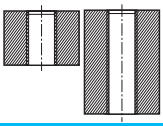
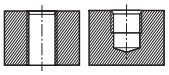
Advantages:

- process reliable tapping
- long tool life
- accuracy

Application recommendations for taps

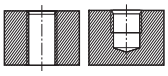
Material examples			for gen. steels ≤ 800 MPa and non-ferrous metals	for gen. steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hardened steels heat-treatable steels	for gen. steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hardened steels heat-treatable steels		for gen. steels ≤ 800 MPa and non-ferrous metals	for gen. steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hardened steels heat-treatable steels	
Hole type									
Tool material			HSS-E						
Type			Massiv N	N	Produktiv N		Intensiv N		
Form			B	C	B		C		
Surface finish			bright	bright	bright	TiN	bright	bright	TiN
v_c m/min			**≤ 15**	**≤ 15**	**≤ 15**	**≤ 20**	**≤ 15**	**≤ 15**	**≤ 20**
Thread type	Dimensions to DIN 2184-1	Tolerance zone	**Catalog no./Ø-range/Page**						
M	**DIN 371**	**ISO 2 6H**	73126 M2.3 - M10 380	73185 M1 - M10 378	73133 M2 - M10 387	63133 M3 - M10 385	73221 M2 - M10 393	73146 M2 - M10 392	63146 M3 - M10 390
		ISO 3 6G			73132 M2.5 - M10 386			73145 M3 - M10 391	
	DIN 376	**ISO 2 6H**		73191 M6 - M22 379	73138 M2 - M24 389	63138 M12 - M20 388	73227 M3 - M20 396	73148 M3 - M30 395	63148 M12 - M20 394
MF	**DIN 374**	**ISO 2 6H**		73237 M8x0.75 - M24x1.5 441	73250 M4x0.50 - M36x1.5 442			73173 M3x0.35 - M30x2 443	63173 M8x1- M20x1.5 444
G	**DIN 5156**	**–**						73286 G1/8 - G1 1/2 467	

Application recommendations for taps

Material examples	for short chipping non-ferrous alloys, e. g.: AlSi > 10% Si	for Al and Al-alloys, e. g.: pure aluminium-alloys Al wrought alloys < 10% Si		for short chipping Al and Al-alloys non-ferrous metals plastics	for cast materials, e. g.: grey cast iron malleable cast iron spheroidal graphite cast iron cast iron		
Hole type							
Tool material	HSS-E-PM	HSS-E		Solid carbide	HSS-E-PM	**HSS-E**	
Type	HCX	Produktiv W	Intensiv W	H	HCX	GG	
Form	C	B	C		C	C	
Surface finish	TICN	bright	bright	bright	TICN	nitrided	AlTiN
v_c m/min	**≤ 20**	**≤ 15**	**≤ 15**	**≤ 15**	**≤ 20**	**≤ 20**	**≤ 30**

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range/Page						
M	**DIN 371**	**ISO 2 6H**		73131 M2 - M10 431	73156 M2 - M10 433				
		6HX	53670 M5 - M10 383			73011 M3 - M10 384	53670 M5 - M10 383	73201 M3 - M10 429	63201 M3 - M10 428
	DIN 376	**ISO 2 6H**		73189 M12 - M20 432	73136 M12 - M20 434				
		6HX						73211 M12 - M20 430	
MF	**DIN 374**	**6HX**						73194 M8x1 - M20x1.5 448	
UNC	**DIN ~ 371**	**2B**						73326 Nr.8-32 - 3/8-16 457	
	DIN ~ 376	**2B**						73327 1/2-13 - 1-8 458	
G	**DIN 5156**	**–**						73345 G1/8 - G1 470	

Application recommendations for hand taps, short machine- and special taps

Material examples	for gen. steels ≤ 800 MPa, e. g.: struct. steels, free-cutting steels case hard. steels, heat-treat. steels The sets 73531 and 73532 are also suitable for high tensile, acid- and stainless resist. steels		for general steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hard. steels heat-treat. steels	
Hole type				
Tool material	HSS		HSS-E	
Type	N		N	
Form	–	B	combinat.	-
Surface finish	bright	bright	bright	bright
v_c m/min	–	≤ 15	≤ 15	≤ 15

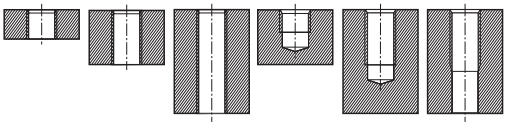
Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range/Page				
M	**DIN 352**	**ISO 2 6H**	73531 (Set) RH: V 73101 M 73102 F 73103 M1 - M24 491	73532 (Set) LH: V 73105 M 73106 F 73107 M4 - M16 492			73243 M3 - M18 498
	Stock std.	**ISO 2 6H**				73248 M3 - M12 497	
MF	**DIN 2181**	**ISO 2 6H**	73521 (Set): V 73110 / F 73111 M5x0.5 - M18x1.5 493				
UNC	**~DIN 352**	**2B**	73535 (Set): V 73301 / M 73302 / F 73303 Nr.4-40 - 3/4-10 494				
BSW	**~DIN 352**	**–**	73534 (Set): V 73311 / M 73312 / F 73313 W1/8 - W3/4 495				
G	**DIN 5157**	**–**	73522 (Set): V 73315 / F 73316 G1/8 - G1/2 496				
Pg	**DIN 40432**	**–**			73296 Pg7 - PG16 472		
NPT	**Stock std.**	**–**			73295 1 1/16 - 1 473		

also available from STOCK:

TAPPING CHUCKS

Application recommendations for cold forming taps

Hole type



Material examples

for general steels ≥ 800…1000 MPa,
stainless and acid resistant steels,
universal applications in materials < 1000 MPa and
Al and Al-alloys

		Tool material	HSS-E				HSS-E-PM	Solid carbide
		Type	Durativ					
		Form	C without oil grooves		C with oil grooves			
		Surface finish	bright	TiN	bright	TiN	AlCrN	TiCN
		v_c m/min	**4-50**	**4-50**	**4-50**	**4-50**	**4-50**	**4-50**
Thread type	Dimensions to DIN 2174	Tolerance zone	**Catalog no./Ø-range/Page**					
M	~ **DIN 371**	**6HX**	73121 M2 - M10 482	63121 M2 - M10 483	73120 M3 - M10 474	63120 M3 - M10 475	53620 M3 - M10 478	63013 M3 - M10 481
		6GX				63119 M3 - M10 476	53621 M3 - M10 479	
	~ **DIN 376**	**6HX**		63123 M12 - M20 484		63122 M12 - M16 477	53622 M12 - M20 480	

Application recommendations for thread milling cutters

Hole type

Material examples

for universal application:
structural steels, free-cutting steels
case hardened steels, heat-treatable steels,
tool steels, high speed steels,
sulphured, austenitic and martensitic steels, special alloys
Al and Al-alloys,
cast materials, non-ferrous metals,
plastics, magnesium-alloys, Titanium

		Tool material	Solid carbide		Solid carbide	
		Type	TMC SP		TM SP	
		Form	-	-	-	-
		Surface finish	bright	TiCN	bright	TiCN
		v_c m/min	**100 - 300 (Ti: 40-60)**	**50 - 200**	**100 - 300 (Ti: 40-60)**	**50 - 200**
Thread type	Dimensions to DIN 2184-1	Tolerance zone	**Catalog no./Ø-range/Page**			
M	**Stock std.**	**2,0 x D**	73810 M3 - M20 485	53810 M3 - M20 486	73830 M6 - M20 489	53830 M6 - M20 490
MF	**Stock std.**	**2,0 x D**	73820 M4x0.5 - M16x1.5 488	53820 M4x0.5 - M16x1.5 487	73830 M8x1 - M20x1.5 489	53830 M8x1 - M20x1.5 490