NEW

Member IMC Group Ingersoll Cutting Tools

WINSFEED

FACEFLEX

INSERT LINE EXPANDED
TO 2 MM WIDTH

SHALLOW FACE GROOVING HIGH RIGIDITY
INSERT LINE EXPANDED TO 2 MM WIDTH

- *Expanded to 2-4 mm width inserts*
- *Robust insert and screw clamping design*
- *Thicker insert design for higher stiffness*
- *Wide variety of applications*
- *Good chip evacuation and stable tool life*

No. T362 E / 3-2023

Product Overview

Ingersoll has expanded the FaceFlex line to include 2 mm inserts for shallow face grooving.

A constant challenge in face grooving operations is the tool's frequent breakage due to the holder's vulnerability and the difficulty of chip evacuation during operation. With the FaceFlex's innovative clamping design solution eliminating these issues, Ingersoll now expands the family of inserts to a 2-4 mm width range.

Technical Features

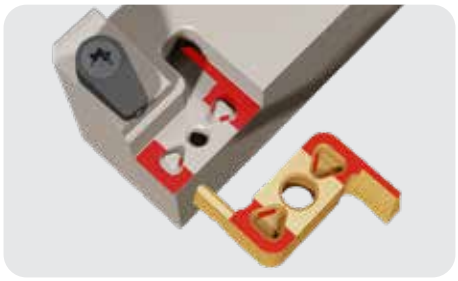
The insert's bottom face includes anti-rotating triangular grooves and a screw clamping design for very robust and stable mounting to the holder. Should the insert's engaged cutting edge fail during machining, the opposite side's cutting edge can be used. The insert's higher thickness means improved stability, preventing abrupt breakage. Therefore, this results in extremely stable machining under harsh cutting conditions.

The **FaceFlex** line is optimally suited to a wide variety of applications with stable machining and tool life, greatly improving productivity.

Advantages

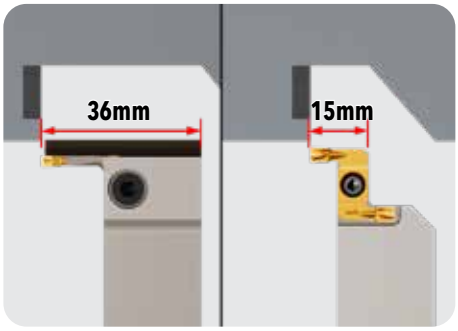
- Expanded standard insert line: 2-4 mm width inserts
- Minimum machining diameter: D25, 2-edged insert, ap_{max} = 6 mm
- Robust insert and screw clamping design:
  - Anti-rotating triangular grooves on the insert's bottom enhances stability
  - Opposite cutting edge can be used in the event of corner breakage
- Thicker insert design for higher stiffness
- Wide variety of applications:
  - Face grooving, face turning, external grooving, external turning and threading
- High-pressure **CoolBurst** holders ensure good chip evacuation and stable tool life

Insert Features

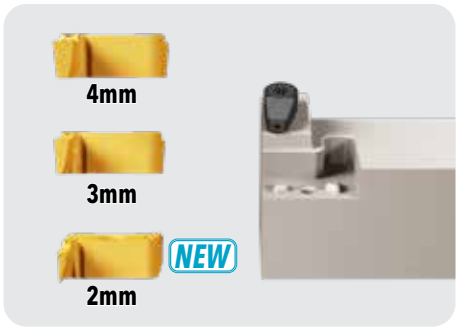


Unique insert's bottom face for strong clamping

Holder Features



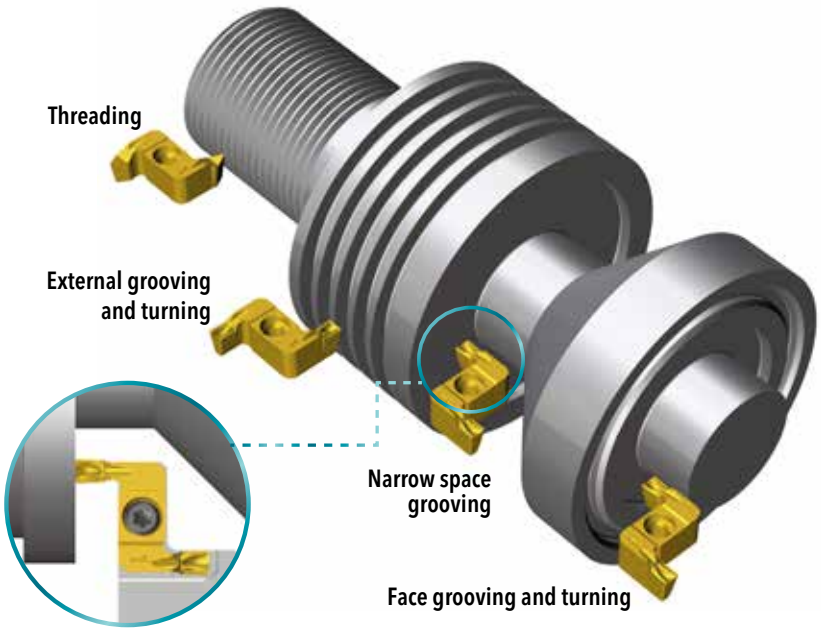
Designed for facing and grooving in confined spaces



Various insert widths can be applied to one holder

Various applications

- Face grooving and turning
- External grooving and turning
- Narrow space grooving
- Threading



Recommended Cutting Data - Grooving & Turning

ISO	Material		Condition	Tensile strength (N/mm²)	Hardness HB	Material No.	Cutting speed Vc (m/min)
							TT9080
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	100-200
		≥0.25%C	Annealed	650	190	2	100-180
		<0.55%C	Quenched and tempered	850	250	3	80-160
		≥0.55%C	Annealed	750	220	4	80-160
			Quenched and tempered	1000	300	5	70-130
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	100-160
			Quenched and tempered	930	275	7	80-160
				1000	300	8	80-150
				1200	350	9	80-130
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	90-130
			Quenched and tempered	1100	325	11	50-80
M	Stainless steel and cast steel		Ferritic / martensitic	680	200	12	80-170
			Martensitic	820	240	13	80-150
			Austenitic	600	180	14	80-170
K	Gray cast iron (GG)		Ferritic	-	160	15	100-230
			Pearlitic	-	250	16	90-180
	Cast iron nodular (GGG)		Ferritic	-	180	17	150-250
			Pearlitic	-	260	18	100-230
	Malleable cast iron		Ferritic	-	130	19	90-180
			Pearlitic	-	230	20	90-180
N	Aluminum - wrought alloy		Not cureable	-	60	21	-
			Cured	-	100	22	-
	Aluminum-cast, alloyed	≤12% Si	Not cureable	-	75	23	-
			Cured	-	90	24	-
		>12% Si	High temp.	-	130	25	-
	Copper alloys	>1% Pb	Free cutting	-	110	26	-
			Brass	-	90	27	-
			Electrolitic copper	-	100	28	-
	Non-metallic		Duroplastics, fiber plastics	-	-	29	-
			Hard rubber	-	-	30	-
S	High temp. alloys	Fe based	Annealed	-	200	31	30-50
			Cured	-	280	32	20-40
		Ni or Co based	Annealed	-	250	33	20-30
			Cured	-	350	34	15-20
			Cast	-	320	35	15-20
	Titanium, Ti alloys			Rm 400	-	36	130-170
			Alpha+beta alloys cured	Rm 1050	-	37	40-70
H	Hardened steel		Hardened	-	55HRC	38	-
			Hardened	-	60HRC	39	-
	Chilled cast iron		Cast	-	400	40	-
	Cast iron nodular		Hardened	-	55HRC	41	-

Steel | Stainless steel | Cast iron | Nonferrous | High temp. alloys | Hardened steel

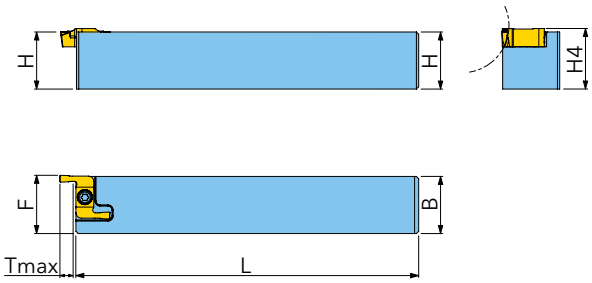
Recommended Cutting Data - Face grooving and Internal grooving

ISO	Material		Condition	Tensile strength (N/mm²)	Hardness HB	Material No.	Cutting speed Vc (m/min)
							TT9080
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	100-150
		≥0.25%C	Annealed	650	190	2	60-100
		<0.55%C	Quenched and tempered	850	250	3	50-100
		≥0.55%C	Annealed	750	220	4	60-110
			Quenched and tempered	1000	300	5	50-100
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	60-110
			Quenched and tempered	930	275	7	70-110
				1000	300	8	70-110
				1200	350	9	60-90
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	60-90
			Quenched and tempered	1100	325	11	50-80
M	Stainless steel and cast steel		Ferritic / martensitic	680	200	12	50-130
			Martensitic	820	240	13	50-130
			Austenitic	600	180	14	40-130
K	Gray cast iron (GG)		Ferritic	-	160	15	100-180
			Pearlitic	-	250	16	90-150
	Cast iron nodular (GGG)		Ferritic	-	180	17	120-200
			Pearlitic	-	260	18	100-180
	Malleable cast iron		Ferritic	-	130	19	80-150
			Pearlitic	-	230	20	80-150
N	Aluminum - wrought alloy		Not cureable	-	60	21	-
			Cured	-	100	22	-
	Aluminum-cast, alloyed	≤12% Si	Not cureable	-	75	23	-
			Cured	-	90	24	-
		>12% Si	High temp.	-	130	25	-
	Copper alloys	>1% Pb	Free cutting	-	110	26	-
			Brass	-	90	27	-
			Electrolitic copper	-	100	28	-
	Non-metallic		Duroplastics, fiber plastics	-	-	29	-
			Hard rubber	-	-	30	-
S	High temp. alloys	Fe based	Annealed	-	200	31	20-40
			Cured	-	280	32	15-30
		Ni or Co based	Annealed	-	250	33	15-20
			Cured	-	350	34	15-20
			Cast	-	320	35	15-20
	Titanium, Ti alloys			Rm 400	-	36	90-120
			Alpha+beta alloys cured	Rm 1050	-	37	20-50
H	Hardened steel		Hardened	-	55HRC	38	-
			Hardened	-	60HRC	39	-
	Chilled cast iron		Cast	-	400	40	-
	Cast iron nodular		Hardened	-	55HRC	41	-

Steel Stainless steel Cast iron Nonferrous High temp. alloys Hardened steel

FACEFLEX TXFR/L

HOLDER FOR GROOVING AND TURNING

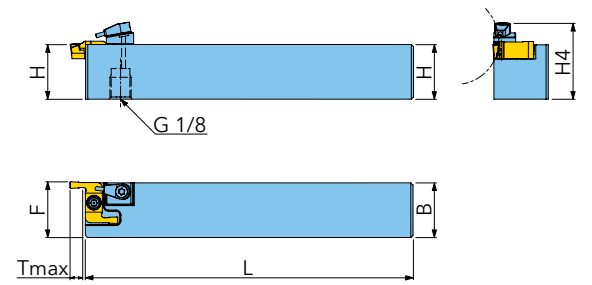


Designation	L	H	H4	B	F	Tmax	insert-S	kg	①	②
TXFL 2020	125	20	21,5	20	20,5	6,0	2,3,4	0,75	TS 40E113IL/HG	L-T15
TXFL 2525	150	25	26,5	25	25,5	6,0	2,3,4	0,75	TS 40E113IL/HG	L-T15
TXFR 2020	125	20	21,5	20	20,5	6,0	2,3,4	0,75	TS 40E113I/HG	L-T15
TXFR 2525	150	25	26,5	25	25,5	6,0	2,3,4	0,75	TS 40E113I/HG	L-T15

① = Clamp screw ② = Wrench

FACEFLEX TXFR/L -TB

HOLDER FOR GROOVING AND TURNING WITH HIGH PRESSURE COOLANT



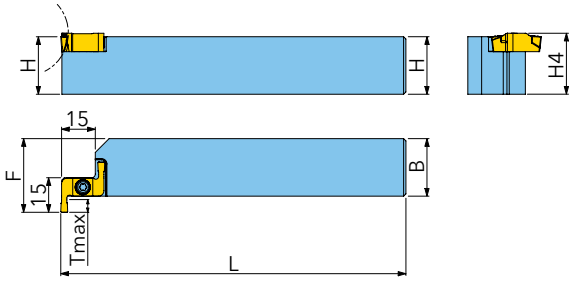
Designation	L	H	H4	B	F	Tmax	insert-S	kg	IK	①	②	③
TXFL 2525-TB	150	25	35,5	25	25,5	6,0	2,3,4	0,75	✓	TS 40E113IL/HG	L-T15	S-CU-TB
TXFR 2525-TB	150	25	35,5	25	25,5	6,0	2,3,4	0,75	✓	TS 40E113I/HG	L-T15	S-CU-TB

① = Clamp screw ② = Wrench ③ = Coolant unit

FACEFLEX TXFPR/L

HOLDER FOR GROOVING AND TURNING

TDGX TDFX



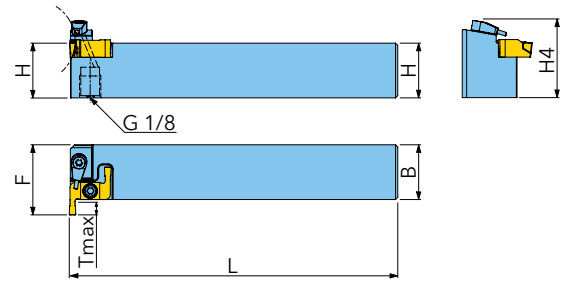
Designation	L	H	H4	B	F	Tmax	insert-S	kg	①	②
TXFPL 2020	125	20	21,5	20	27	6,0	2,3,4	0,70	TS 40E113IL/HG	L-T15
TXFPL 2525	150	25	26,5	25	32	6,0	2,3,4	0,70	TS 40E113IL/HG	L-T15
TXFPR 2020	125	20	21,5	20	27	6,0	2,3,4	0,70	TS 40E113I/HG	L-T15
TXFPR 2525	150	25	26,5	25	32	6,0	2,3,4	0,70	TS 40E113I/HG	L-T15

① = Clamp screw ② = Wrench

FACEFLEX TXFPR/L -TB

HOLDER FOR GROOVING AND TURNING WITH HIGH PRESSURE COOLANT

TDGX TDFX

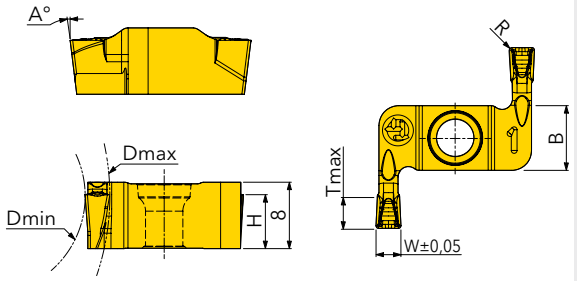


Designation	L	H	H4	B	F	Tmax	insert-S	kg	IK	①	②	③
TXFPL 2525-TB	150	25	35,5	25	32	6,0	2,3,4	0,80	✓	TS 40E113IL/HG	L-T15	S-CU-TB
TXFPR 2525-TB	150	25	35,5	25	32	6,0	2,3,4	0,80	✓	TS 40E113I/HG	L-T15	S-CU-TB

① = Clamp screw ② = Wrench ③ = Coolant unit

FACEFLEX TDFX -E

2-EDGED INSERT FOR AXIAL GROOVING AND TURNING

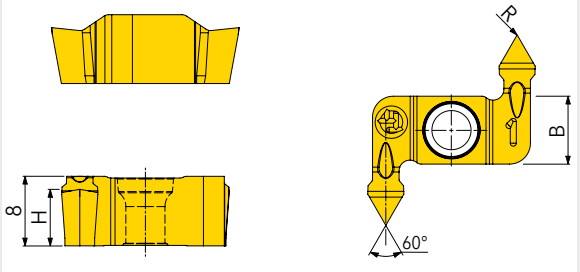


Designation	R	A	B	H	W ± 0,05	Tmax	Dmin	Dmax	insert-S	Grade	TT9080
TDFX 2E-0.3-D25R	0,3	7	7,8	6,5	2,0	6,0	25	NL	2		
TDFX 3E-0.3-D24L	0,3	7	7,8	6,5	3,00	6,0	24	NL	3		
TDFX 4E-0.4-D32L	0,4	7	7,8	6,5	4,00	6,0	32	NL	4		
TDFX 2E-0.3-D25R	0,3	7	7,8	6,5	2,0	6,0	25	NL	2		
TDFX 3E-0.3-D24R	0,3	7	7,8	6,5	3,00	6,0	24	NL	3		
TDFX 4E-0.4-D32R	0,4	7	7,8	6,5	4,00	6,0	32	NL	4		

= P = M = K = N = S = H

FACEFLEX TDGX -MT

2-EDGED INSERT FOR THREADING WITH 60° PARTIAL PROFILE



Designation	R	A	B	H	insert-S	P min.	P max.	Grade	TT9080
TDGX 4MT-0.05-L	0,05	60	7,8	6,5	4	0,45	3,50		
TDGX 4MT-0.05-R	0,05	60	7,8	6,5	4	0,45	3,50		

= P = M = K = N = S = H

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