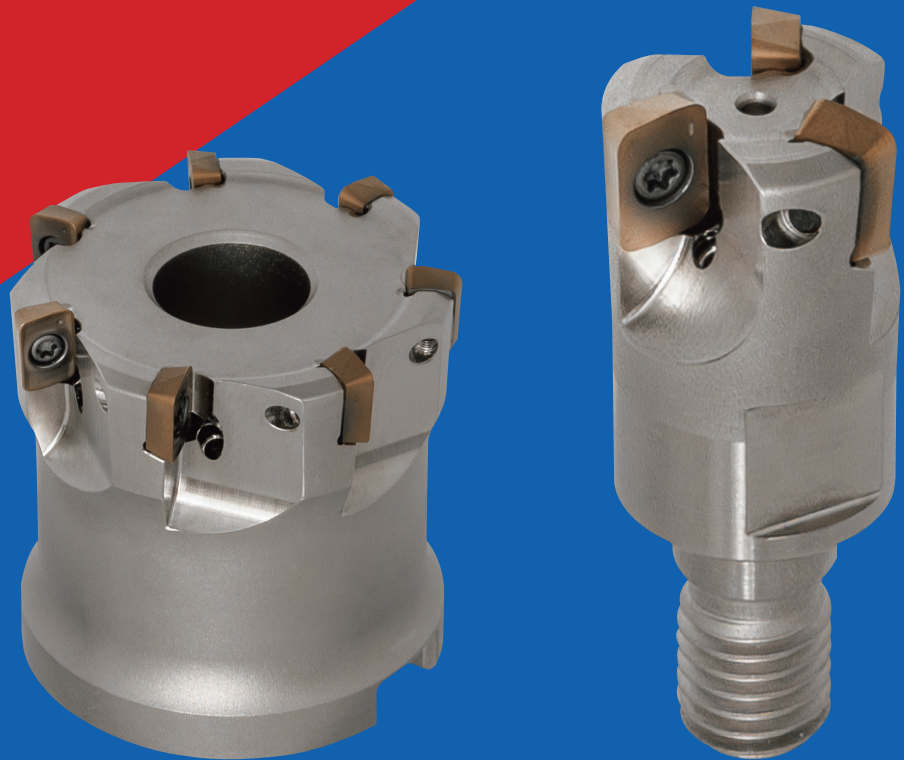


Turbo Roughing 2 Corner Fast-Feed

TR2F

Radius Mill TR2F



MOLDINO Tool Engineering Europe GmbH

Excellent cutting performance for long-overhang machining and machining of high performance materials for die-casting molds.

Features of TR2F

01 Unique cutting edge profile for excellent chip formation

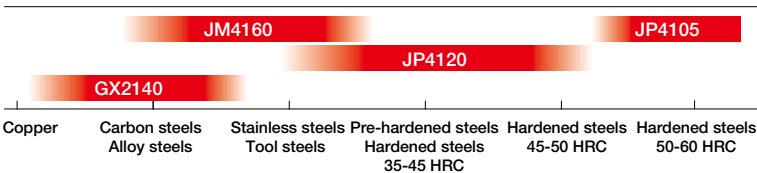
02 Resists chattering even with long overhangs

Line-up: 10 holders, 3 insert types

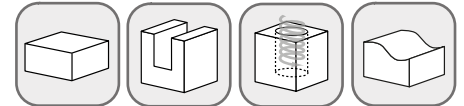
DCX: 16-52 mm



Recommended usage



Applications



Customer need and product benefit



Challenge

Machining high-performance materials is time-consuming, and it reduces productivity. Deep machining processes don't provide the needed consistency, therefore EDM is used.



Solution

Our TR2F indexable tool is specifically designed for reliable machining with long overhangs. It allows higher cutting speeds (V_c), enhancing productivity.

Feature
01
Unique cutting edge profile for excellent chip formation

TR2F tool life is 2.3 times higher compared to conventional tools.

Conventional

TR2F

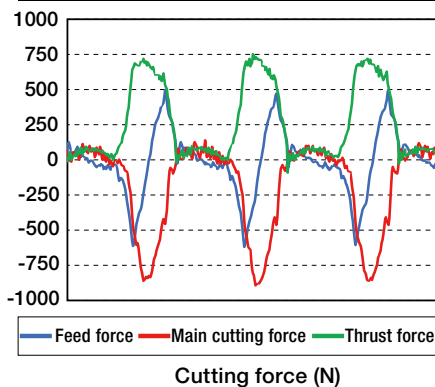
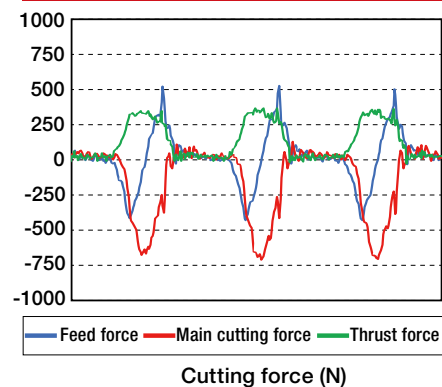
Application details:

Work material: DH31-S (45HRC); similar to 1.2367 mod
 Tool dia.: 20mm
 Cutting speed: $V_c = 120$ m/min
 Feed rate: $f_z = 0.8$ mm/t
 Depth of cut: $a_p \times a_e = 0.3 \times 13$ mm
 Overhang: OH 120 mm (L/D=6)

The unique TR2F cutting edge profile ensures excellent chip formation even under high-speed conditions.

Feature
02
Resists chattering even with long overhangs

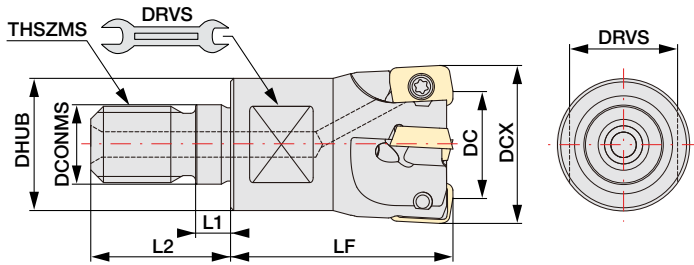
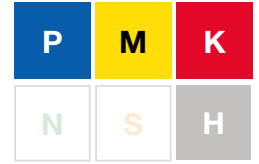
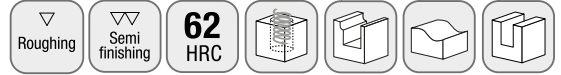
TR2F achieves 34% lower cutting resistance compared to conventional products.

Conventional

TR2F

Application details:

Work material: DH31-S (45HRC); similar to 1.2367 mod
 Tool dia.: 20mm
 Cutting speed: $V_c = 150$ m/min
 Feed rate: $f_z = 0.8$ mm/t
 Depth of cut: $a_p \times a_e = 0.3 \times 13$ mm
 Overhang: OH 120 mm (L/D=6)
 Cutting conditions: Dry, single-edge cutting

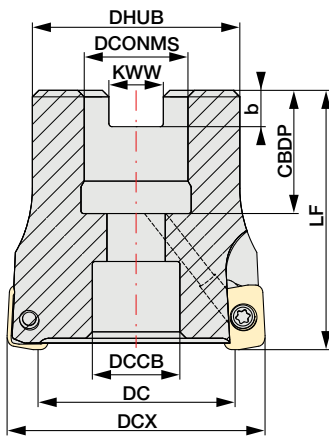
Reliable machining with TR2F is possible even with an overhang of 120 mm (L/D = 6).

TR2F Line-up



Diameter Holder only 0/-0.2 mm	
CAM R	Fastening Torque
2 mm	1.1 Nm

ID Code	Item Code	NOF	Size (mm)								THSZMS	Recommended Insert
			DCX	DC	LF	L1	L2	DCONMS	DHUB	DRVS		
FH697	TR2F2016M-2	2	16	7.6	25	5.5	17	8.5	12.8	10	M8	BP xx 0603 x R-05
FH698	TR2F2020M-3	3	20	11.6	30	5.5	19	10.5	17.8	15	M10	BP xx 0603 x R-05
FH699	TR2F2025M-4	4	25	16.6	35	5.5	22	12.5	20.8	17	M12	BP xx 0603 x R-05
FH700	TR2F2032M-5	5	32	23.6	40	6	23	17	28.8	22	M16	BP xx 0603 x R-05
FH701	TR2F2035M-5	5	35	26.6	40	6	23	17	28.8	22	M16	BP xx 0603 x R-05
FH702	TR2F2040M-6	6	40	31.6	40	6	23	17	28.8	22	M16	BP xx 0603 x R-05
FH703	TR2F2042M-6	6	42	33.6	40	6	23	17	28.8	22	M16	BP xx 0603 x R-05



Diameter Holder only 0/-0.2 mm	
CAM R	Fastening Torque
2 mm	1.1 Nm

ID Code	Item Code	NOF	Size (mm)									Recommended Insert
			DCX	DC	DHUB	LF	CBDP	KWW	b	DCONMS	DCCB	
FH704	TR2F2042BM-6	6	42	33.6	32	40	19	8.4	5.6	16	13.5	BP xx 0603 x R-05
FH705	TR2F2050BM-7	7	50	41.6	47	50	20	10.4	6.3	22	17	BP xx 0603 x R-05
FH706	TR2F2052BM-7	7	52	43.6	47	50	20	10.4	6.3	22	17	BP xx 0603 x R-05

Inserts

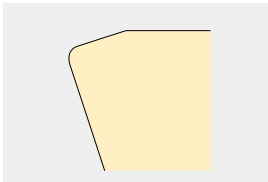
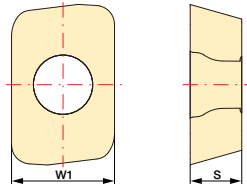


Fig.1
Standard machining
cutting edge profile

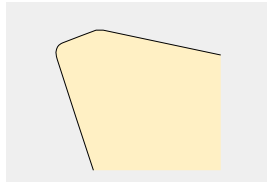


Fig.2
Cutting edge
with breaker

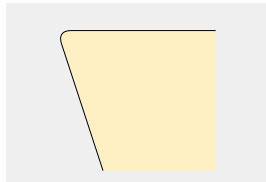


Fig.3
Cutting edge for
high-performance materials

	P	K	M	H				
	Carbon steels				•			•
	FC FCD Cast irons				•			○
	SUS, etc					•		
	Hardened steels			•	○			

Item Code	Tolerance Class	AJ Coating			GX Coating	Size (mm)		Shape
		JP4105	JP4120	JM4160	GX2140	W1	S	
BPNW0603TR-05	N	WF884	WF882	WF883	WF885	6.35	3.18	Fig. 1
BPMT0603TR-05	M	-	WF888	WF889	WF890			Fig. 2
BPNW0603ER-05	N	-	WF886	WF887	-		3.05	Fig. 3

General cutting:
 • First recommendation
 ○ Second recommendation

Note: Please note that the GX Coating do not cause a reaction in conductive touch sensors.

	Work Hardness					Work Hardness		Work Hardness		Work Hardness	
	Low				High	Low	High	Low	High	Low	High
Unstable machining											
Stable machining											
	Mild steels (200HB or less)	Carbon steels, Alloy steels (30 HRC or less)	Carbon steels, Alloy steels (30-45 HRC)	Hardened steels Pre-Harden steels (45-50 HRC)	Hardened steels (50-60 HRC)	High-performance materials for die-casting molds		Stainless steel materials SUS		Cast irons FC, FCD	

Parts

	Clamp Screw (Fastening Torque 1.1 Nm)		Screw Driver		Torque Blade	
Shape						
Cutter body	ID Code	Item Code	ID Code	Item Code	ID Code	Item Code
TR2F XX M/B	ET196	T08-2506A	ET013	104-T8	NT164	T8-TORQUE

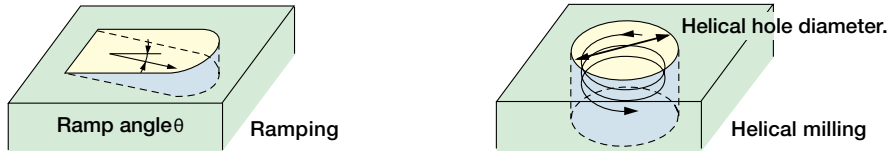
	Arbor screw		
Shape			
DCONMS	ID Code	Item Code	Type
16 mm	ET191	100-183	M8x25
22 mm	ET180	100-178	M10x25

All Torque Blades can be used with Torque screw driver from „Torque-Fix“ (NT163).

Set-up and programming information

○ Maximum ramp angle and helical hole diameter

Since the cutting flute does not extend to the center, there are limitations on the ramp angle and hole diameter, but as shown below, cutting by direct milling without pilot hole is possible for ramping and helical milling.



For ramping and helical cutting, please set the “Vf” to around 50% of recommended cutting condition.

DCX		Size (mm)									
		16	20	25	32	35	40	42	50	52	
Ramping	Maximum ramp angle θ	4°	3°	2°			1.5°		1°		
	Recommendation	2°			1°			0.5°			
Helical milling	Helical hole diameter	22-30	30-38	40-48	54-62	60-68	70-78	74-82	90-98	94-102	

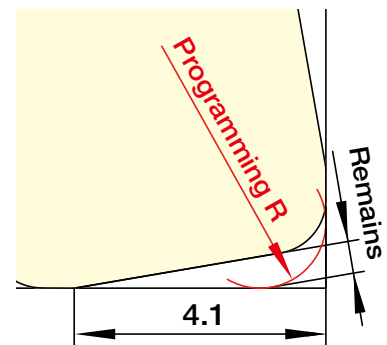
Note:

1. The ramp angle θ should be set with the ranges listed above. Do not exceed the recommended value.
2. For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling
3. It is recommended that the tool be used while performing sufficient chip removal and checking that there are no abnormal vibrations.

○ Programming R and maximum cutting depth

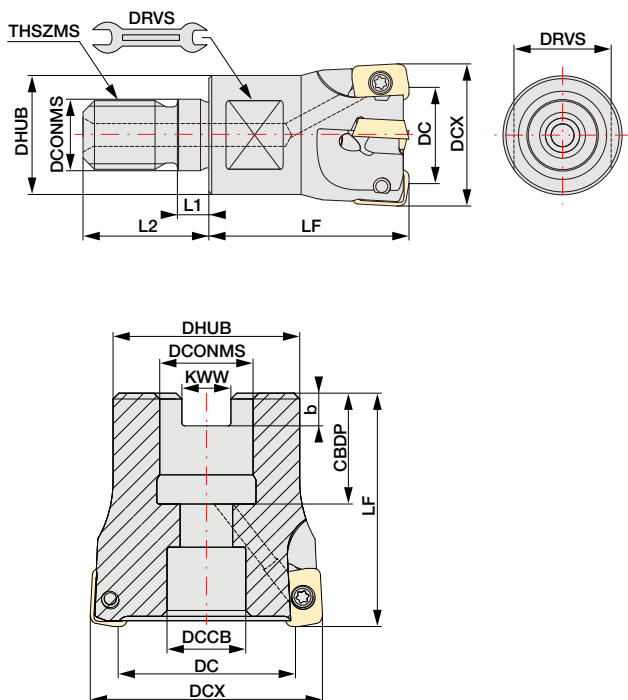
Please define the tool shape in the CAM as indicated in the following table

Programming R (mm)	Remains (mm)	Maximum cutting depth (mm)
R2.0	0.377	0.5



TR2F General technical information

ISO 513 Symbol	Description	Examples
P	Non-alloy steel, low alloy steel, high alloy steel, ferritic/martensitic stainless steel, tool steel	1.2343 / X38CrMoV5-1; 1.2738 / 40CrMnNiMo8; 1.0503 / C45; 1.0570 / ST52-3; 1.1730 / C45W; 1.7131 / 16MnCr5; 1.7225 / 42CrMo4; 1.3343 / HS6-5-2; 1.0511 / C40; 1.2312 / 40CrMnMoS8-6; 1.2311 / 40CrMnMo7; 1.2344 / X40CrMoV5-1; 1.2767 / X45NiCrMo4; 1.2083 / X42Cr13; 1.2085 / X33CrS16; 1.2714 / 55NiCrMoV7; 1.2842 / 90MnCrV8;
M	Austenitic stainless steel	1.4301 / X5CrNi18-9; 1.4401 / X5CrNiMo17-12-2; 1.4404 / X2CrNiMo17-13-2; 1.4828 / X15CrNiSi20 12
K	Grey cast iron (GG), nodular cast iron (GGG), malleable cast iron	0.6025 / GG-25; GGG-40.3; 0.8155 / GTS-55-04
N	Aluminum wrought all, copper alloy, aluminum-cast, alloyed, non-metallic	2.0060 / E-Cu57; 2.0321 / CuZn37; 3.0255 / Al99.5; 3.5103 / MgSE3Zn27r1
S	High temperature alloys, titanium and Ti alloys	1.4864 / X12NiCrSi36 16; 2.4856 / NiCr22Mo9Nb; 1.4977 / X40CoCrNi20 20; 2.4669 / NiCr15Fe7TiAl
H	Hardened steel, chilled cast iron, cast iron	



Drawing Nomenclature	
DCX	Maximum Cutting Diameter
DC	Cutting Diameter
b	Depth Of Keyway
CBDP	Connection Bore Depth
DCCB	Counterbore Diameter Connection Bore
DCONMS	Connection Diameter Machine Side
DRVS	Driver Size
DHUB	Hub Diameter
LF	Functional Length
THSZMS	Connection Thread Nominal Size Machine Side
KWW	Keyway Width
L1	Length 1
L2	Length 2

 **Attentions on Safety**

1. Cautions regarding handling

- (1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.
- (2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

2. Cautions regarding mounting

- (1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.
- (2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.
- (3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

3. Cautions during use

- (1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.
- (2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.
- (3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.
- (4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.
- (5) Do not use the tool for any purpose other than that for which it is intended.

4. Cautions regarding regrinding

- (1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.
- (2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.
- (3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

“MOLDINO” is a registered trademark of MOLDINO Tool Engineering, Ltd.

Specifications for the products listed in this catalog are subject to change without notice due to replacement or modification.

The diagrams and table data are examples of test results and are not guaranteed values.

For more details please check our digital tool database



MOLDINO Tool Engineering Europe GmbH

Itterpark 12 · 40724 Hilden · Germany · Phone +49 (0) 21 03-24 82-0 · Fax +49 (0) 21 03-24 82-30
E-Mail info@moldino.eu · Internet www.moldino.eu

© 2025 by MOLDINO Tool Engineering Europe GmbH

TR2F | 2025-06 | Version 1.0 | PDF