

# T-DRILL

PRODUCTIVITY AS A PRODUCT.



## COLLARING MACHINE

for mechanically formed T-outlets up to SCH40 pipes

# TEC-220

# TEC-220 COLLARING MACHINE

**T-DRILL TEC-220** is a highly powerful collaring machine for up to SCH40 pipes. The **TEC-220** forms mechanically extruded outlets directly on run pipes up to 813 mm (32"). The machine is suitable for branching all malleable materials (Steel, Stainless steel, Aluminum, Copper & Copper-Nickel).

The entire process from pilot hole milling to a complete, trimmed branch outlet of max.  $\text{Ø}219,1$  mm (8") can be performed on a single workstation in three automatic work cycles. Pilot hole milling and collaring are easily controlled by an operation panel with advanced lubrication system built in for each step of the process.

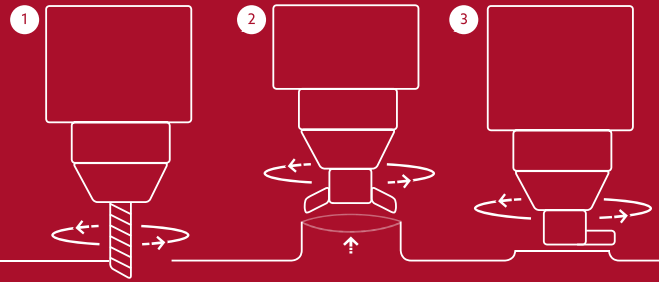


# THE T-DRILL PROCESS

1. Pilot hole milling

2. Collaring

3. Trimming



**T-DRILL TEC-220** is an Industry 4.0 ready machine offering multifold capabilities. The sturdy, ergonomically designed machine is equipped with many safety features that make the **TEC-220** safe and steady to operate - even in the heaviest applications.

The delivery package includes a convenient Tool Table. There are also other accessories & options to customize and upgrade machine operation and tool handling.

The machine is an ideal solution for many industries:

- Stainless Steel Enterprises (e.g. pumps, valves, food & dairy, water treatment, pharmaceutical & Chemical industries)
- HVAC (e.g. heat exchangers, air pumps, radiators)
- Shipbuilding (e.g. air handling, clean & wastewater, ballast water, engine tubes)
- Any branching application utilizing malleable tube & pipe



# EASY AND FAST COLLARING PROCESS



1.



2.



3.



4.



5.



6.

1. The user-friendly 15" operation panel is used for controlling work cycle operations. It also enables manual drive mode and service pages.

2. The standard branch programs can be loaded from machine memory. Operator can also create own collaring programs or modify them from the standard ones.

3. Automatic elliptical pilot hole milling is controlled by the operation panel. The balancer also makes the milling unit (EC) very easy to handle.

4. After placing the collaring head, the collar extrusion is fully automatic. For increased safety, sensors verify the collaring head is correctly installed before starting the work cycle.

5. Quick & accurate trimming. After the trimming process, the branch pipe can be connected to a formed outlet either by orbital or manual welding.

6. No special tools required for tube handling.

# ACCESSORIES & OPTIONS

## PIPE HANDLING

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**Tube Measuring Table** with easy, digital 2-axis manual positioning – the axial- and radial positions can be seen from a digital display.

**Tube Railing System** for easier pipe handling – the pipe can be moved to the next collaring position along the rails.

**Automatic Positioning System (APS)** requires less floor space – the pipe is fixed to the tube rotation table and the TEC-220 machine moves automatically to the defined collaring positions. Also less chance for human error – the TEC-220 moves automatically to the correct axial position according to the work program.

## MACHINE/TOOLS

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**Jib arm** for easy tool handling – recommended with large tools.

**Laser pointer** for accurate collar positioning.

**Special whole-body clamps** when necessary.

**Angle measuring device** when more than one branch in one run pipe, but measuring table is not needed.

**Heavy Duty collaring tools** for thick wall (SCH 40) pipes.

**Ball pull option** for extra small-, thick wall collars or e.g. with hygienic applications

**Beveling device** with typically 37° bevel for welding preparation with thick wall (SCH 40) pipes.

**Tool table** to store several collaring tools close to the machine area.



## TEC-220 – Max. wall thicknesses



MAX. Branch Tube Outside Diameter (mm)

1  
MAX. Run Tube Outside Diameter (mm)

mm Ø	19	21,3	26,9	33,7	42,4	48,3	60,3	76,1	88,9	101,6	114,3	141,3	168,3	219,1
33,7	1,5	1,5	2,0	2,0	---	---	---	---	---	---	---	---	---	---
42,4	2,0	2,0	2,3	2,6	2,6	---	---	---	---	---	---	---	---	---
48,3	2,0	2,0	2,3	2,6	2,9	2,9	---	---	---	---	---	---	---	---
60,3	2,0	2,0	2,3	2,9	2,9	3,2	3,2	---	---	---	---	---	---	---
76,1	2,0	2,0	2,3	2,9	3,2	3,6	3,6	3,6	---	---	---	---	---	---
88,9	2,0	2,0	2,3	2,9	3,2	3,6	3,6	3,6	3,9	---	---	---	---	---
101,6	2,0	2,0	2,3	2,9	3,6	3,6	4,5	5,0	5,0	3,9	---	---	---	---
114,3	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,0	4,5	---	---	---
141,3	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	5,6	4,5	---	---
168,3	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	5,6	5,0	---
219,1	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	5,6	6,3
273,0	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	6,3	6,3
323,9	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	6,3	6,3
355,6	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	6,3	6,3
406,4	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	6,3	6,3
457,2	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	6,3	6,3
560	2,0	2,0	2,3	2,9	3,6	4,0	4,5	5,0	5,6	5,6	6,3	6,3	6,3	6,3




MAX. Branch Tube Outside Diameter (inch)


1  
MAX. Run Tube Outside Diameter (inch)

inch Ø	O.D 3/4" 19 mm	NS 1/2"	NS 3/4"	NS 1"	NS 1 1/4"	NS 1 1/2"	NS 2"	NS 2 3/4"	NS 3"	NS 3 1/2"	NS 4"	NS 5"	NS 6"	NS 8"
NS 1	0.059	0.059	0.079	0.079	---	---	---	---	---	---	---	---	---	---
NS 1 1/4	0.079	0.079	0.090	0.102	0.102	---	---	---	---	---	---	---	---	---
NS 1 1/2	0.079	0.079	0.090	0.102	0.114	0.114	---	---	---	---	---	---	---	---
NS 2	0.079	0.079	0.090	0.114	0.114	0.126	0.126	---	---	---	---	---	---	---
NS 2 3/4	0.079	0.079	0.090	0.114	0.126	0.142	0.142	0.142	---	---	---	---	---	---
NS 3	0.079	0.079	0.090	0.114	0.126	0.142	0.142	0.142	0.154	---	---	---	---	---
NS 3 1/2	0.079	0.079	0.090	0.114	0.142	0.142	0.177	0.197	0.197	0.154	---	---	---	---
NS 4	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.197	0.177	---	---	---
NS 5	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.220	0.177	---	---
NS 6	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.220	0.197	---
NS 8	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.220	0.248
NS 10	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.248	0.248
NS 12	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.248	0.248
NS 14	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.248	0.248
NS 16	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.248	0.248
NS 18	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.248	0.248
NS 22	0.079	0.079	0.090	0.114	0.142	0.157	0.177	0.197	0.220	0.220	0.248	0.248	0.248	0.248


The charts above indicates the maximum wall thicknesses of stainless steel / carbon steel run tubes in each branch size.


## TEC-220 HD –Max. wall thicknesses with HD collaring tools

 MAX. Branch Tube Outside Diameter (mm)

1  MAX. Run Tube Outside Diameter (mm)

mm Ø	26,9	33,7	42,4	48,3	60,3	76,1	88,9	114,3	141,3	168,3	219,1
33,7	3,38	3,38	---	---	---	---	---	---	---	---	---
42,4	3,56	3,56	3,56	---	---	---	---	---	---	---	---
48,3	3,68	3,68	3,68	3,68	---	---	---	---	---	---	---
60,3	3,91	3,91	3,91	3,91	3,91	---	---	---	---	---	---
76,1	5,16	5,16	5,16	5,16	5,16	5,16	---	---	---	---	---
88,9	5,49	5,49	5,49	5,49	5,49	5,49	5,49	---	---	---	---
114,3	6,02	6,02	6,02	6,02	6,02	6,02	6,02	6,02	6,02	---	---
141,3	6,02	6,55	6,55	6,55	6,55	6,55	6,55	6,55	6,55	6,55	---
168,3	6,02	6,55	6,55	7,11	7,11	7,11	7,11	7,11	7,11	7,11	7,11
219,1	6,02	6,55	7,11	8,18	8,18	8,18	8,18	8,18	8,18	8,18	8,18
273,0	6,02	6,55	7,11	8,18	9,27	9,27	9,27	9,27	9,27	9,27	9,27
323,9	6,02	6,55	7,11	8,18	9,27	9,27	10,31	10,31	10,31	10,31	10,31
355,6	6,02	6,55	7,11	8,18	9,27	9,27	10,31	10,31	11,13	11,13	11,13
406,4	6,02	6,55	7,11	8,18	9,27	9,27	10,31	10,31	12,70	12,70	12,70
457,2	6,02	6,55	7,11	8,18	9,27	9,27	10,31	10,31	12,70	12,70	12,70
560	6,02	6,55	7,11	8,18	9,27	9,27	10,31	10,31	12,70	12,70	12,70

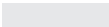
 MAX. Branch Tube Outside Diameter (inch)

1  MAX. Run Tube Outside Diameter (inch)

inch Ø	NS ¾"	NS 1"	NS 1¼"	NS 1½"	NS 2"	NS 2½"	NS 3"	NS 4"	NS 5"	NS 6"	NS 8"
NS 1"	0.133	0.133	---	---	---	---	---	---	---	---	---
NS 1¼"	0.140	0.140	0.140	---	---	---	---	---	---	---	---
NS 1½"	0.145	0.145	0.145	0.145	---	---	---	---	---	---	---
NS 2"	0.154	0.154	0.154	0.154	0.154	---	---	---	---	---	---
NS 2½"	0.203	0.203	0.203	0.203	0.203	0.203	---	---	---	---	---
NS 3"	0.216	0.216	0.216	0.216	0.216	0.216	0.216	---	---	---	---
NS 4"	0.237	0.237	0.237	0.237	0.237	0.237	0.237	0.237	---	---	---
NS 5"	0.237	0.256	0.256	0.256	0.256	0.256	0.256	0.256	0.256	---	---
NS 6"	0.237	0.256	0.256	0.279	0.279	0.279	0.279	0.279	0.279	0.279	---
NS 8"	0.237	0.256	0.279	0.322	0.322	0.322	0.322	0.322	0.322	0.322	0.248
NS 10"	0.237	0.256	0.279	0.322	0.364	0.364	0.364	0.364	0.364	0.364	0.248
NS 12"	0.237	0.256	0.279	0.322	0.364	0.364	0.405	0.405	0.405	0.405	0.248
NS 14"	0.237	0.256	0.279	0.322	0.364	0.364	0.405	0.405	0.438	0.438	0.248
NS 16"	0.237	0.256	0.279	0.322	0.364	0.364	0.405	0.405	0.500	0.500	0.248
NS 18"	0.237	0.256	0.279	0.322	0.364	0.364	0.405	0.405	0.500	0.500	0.248
NS 22"	0.237	0.256	0.279	0.322	0.364	0.364	0.405	0.405	0.500	0.500	0.248

The charts above indicates the maximum wall thicknesses of stainless steel / carbon steel run tubes in each branch size.

 In 1:1 cases contact T-DRILL Sales.

 SCH 40





## Technical data

Branch tube diameter	Run tube diameter	Materials for work piece	Operating voltage	Fuse sizes	Connected power
19-219,1 mm (½" - 8")	33,7-813 mm (1" - 32")	Fe, Stainless Steel, Al, Cu, CuNi	400 V / 50 Hz, 3-phase Optionally 230 V / 50 Hz	Max. 3 x 63A	5 kW
Air supply	Air consumption	Noise level	Machine dimension H x W x D	Package dimension H x W x D w/o measuring table	Gross weight
6-8 bar	50 l/min	Max. 85 dB	1800 x 1250 x 1700 mm	1900 x 1350 x 2050 mm	1500 kg

## **DO IT WITH T-DRILL**

Cut costs – Improve quality – Increase profit

- No T-fittings
- No costly inventories
- Less tube cutting

- Only one welding joint
- Minimum inspection cost
- Tee ratio variation flexibility

- Easier welding (flat outlet)
- Smaller chance of leakage
- Optimized flow characteristics