

1. Flowdrill

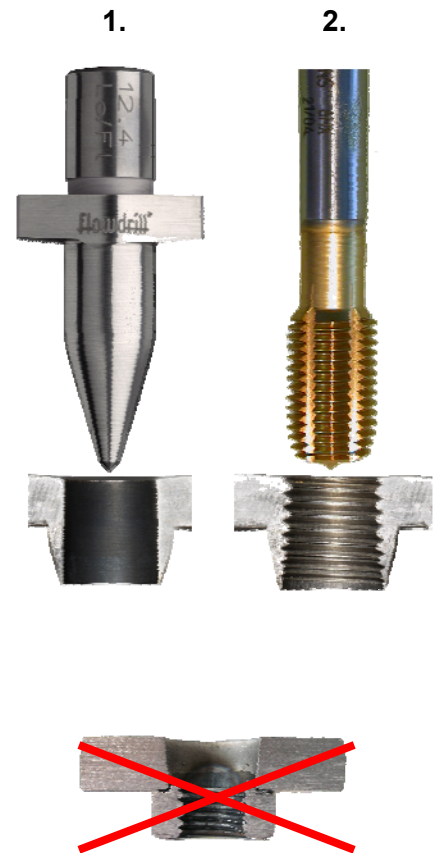
Combining rotation and pressure, the **Flowdrill®** will form a hole and simultaneously, extrude a bush from the displaced material in a clean and chipless process.

- ▶ Lower production cost per hole
- ▶ Bush length up to 3 times the original material thickness
- ▶ Chipless drilling and precision bushing
- ▶ Short cycle time of between 2 and 6 seconds
- ▶ High pull out strength
- ▶ Mild and Stainless Steel, Copper, Brass, Aluminium
- ▶ Most malleable metals

2. Flowtap

The cold forming process of internal threads is an economical and flawless method of production, compared to the conventional cutting process, featuring numerous advantages:

- ▶ No chips during process
- ▶ Dimensional accuracy of the threads along with high surface quality
- ▶ Advantage of better productivity with high tensile material
- ▶ No special requirements for machinery and equipment
- ▶ Higher thread loads are possible as compared with traditional thread cutting methods



The automotive industry uses Flowdrill in various applications because it reduces labor costs, minimizes weight of materials and saves a lot of money.

Exhaust Gas Recirculation



Exhaust Systems, O2 Sensors



Steering Columns



Hinges



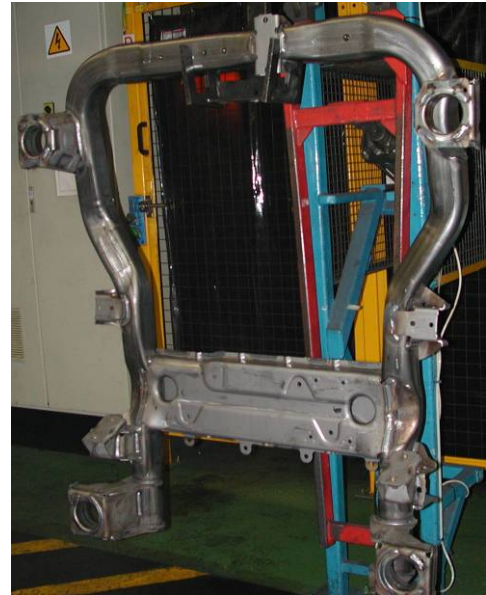
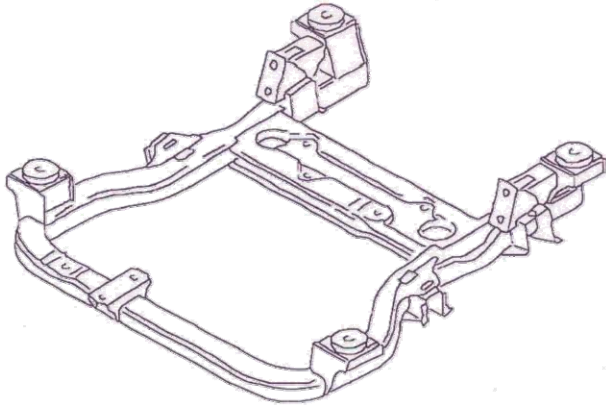
Water Cooling Systems



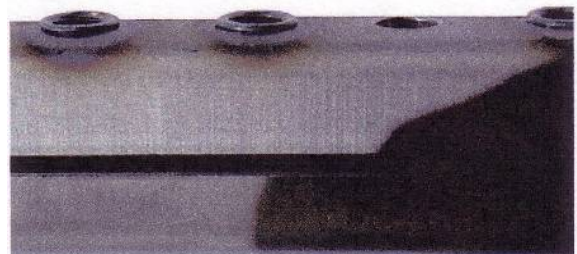
Universal Joint



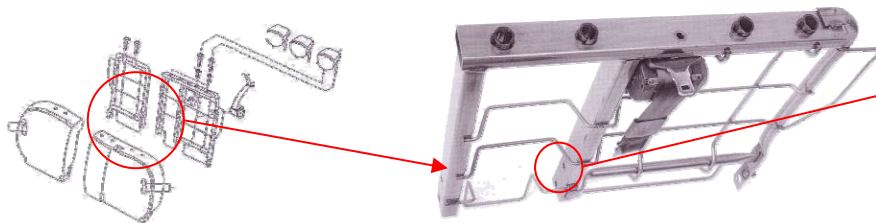
Body Frames



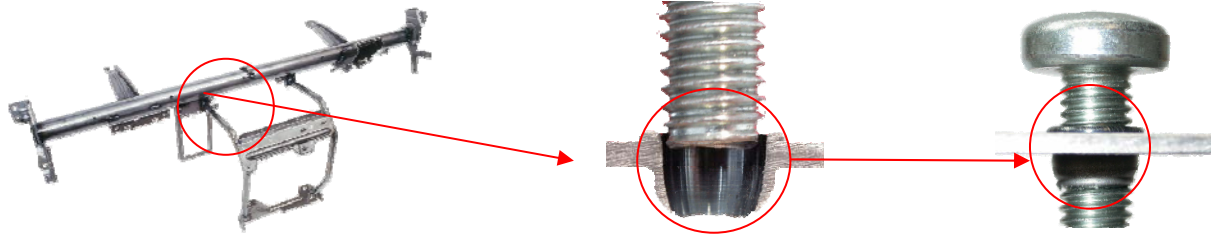
Front Seat



Rear Seat



Car Cross Beam



Accelerator



Front axial



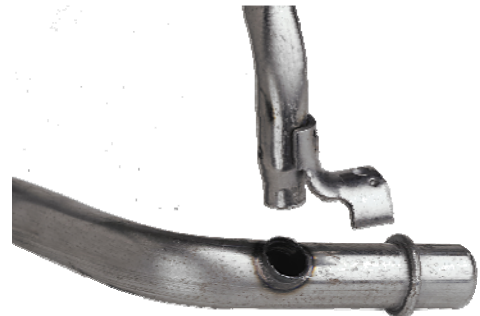
Seat Assy.



Shock Absorber



Fuel Lines



Flowdrill for the connection of the hood



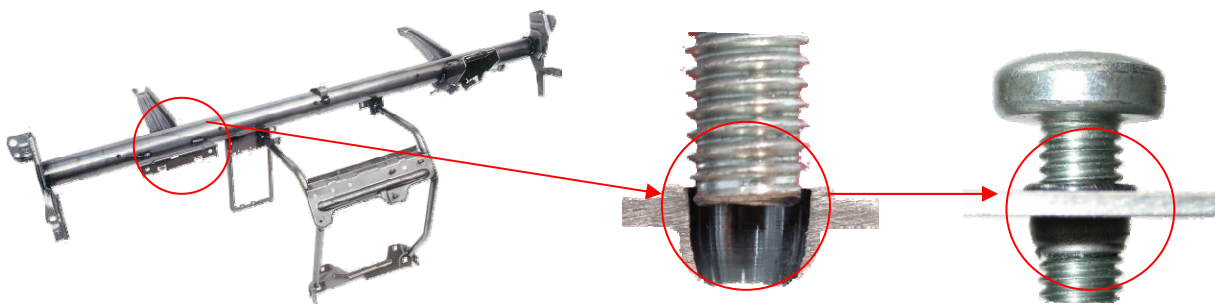
Specification

Material	Steel
Form	Square Pipe
Size	20,0 x 20,0 x 2,0 mm
Thread	M 8
Flowdrill	FD 7,3 Short Flat

Exceptions

- ▶ **Achievement in serial production**
- ▶ **Solvable and high-qualitative jointing**
- ▶ **Lowering of the system costs**

Flowdrill for threads and threadforming screws



Specifications

Material	High Tensile Steel
Form	Pipe
Size	60,0 x 3,0 mm
Thread	M5
Flowdrill	FD 4,75 Long

Exception

- ▶ **Flowdrill for threads and threadforming screws**
- ▶ **Series production with 5 pieces of Somex pneumatic linear feed units**
- ▶ **High quality connections**
- ▶ **Decrease of Production costs**

Flowdrill with thread for connecting the seat rails



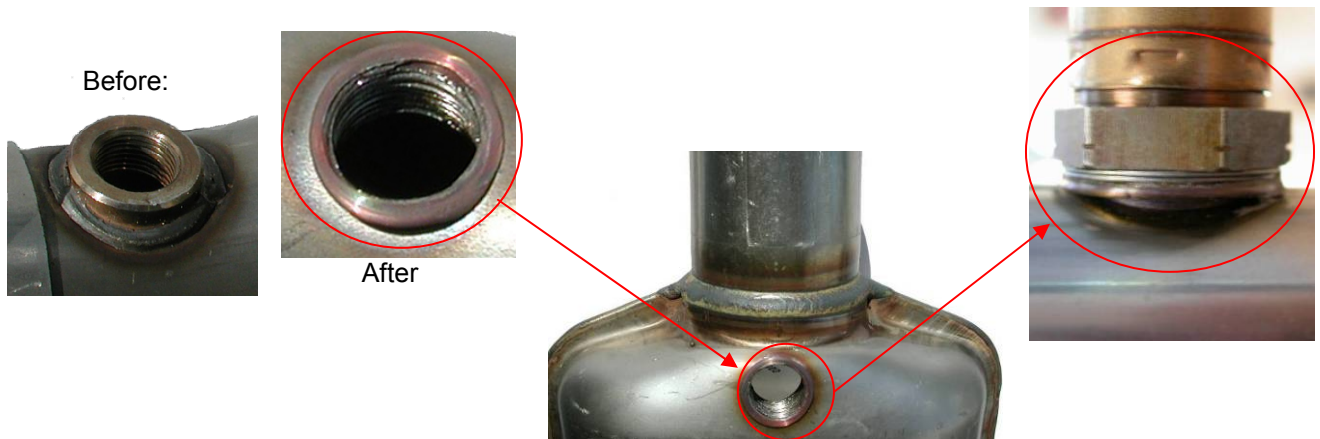
Specifications

Material	Steel
Form	U- Pipe
Size	60x30x2,5 mm
Thread	M 8
Flowdrill	FD 7,3 Long bzw. FD 7,3 Short Flat

Exceptions

- ▶ **Application in the serial production**
- ▶ **Solvable and high-qualitative connection**
- ▶ **Exact tapped holes**

Flowdrill with thread for O2 Sensor



Specification

Material	Stainless Steel
Form	Round Pipe
Size	50 x 1,5 mm
Thread	MF 18x1,5
Flowdrill	FD 17,2 Short Special

Exceptions

- ▶ **Optimum sealing by level collar surface**
- ▶ **Improved thread guidance by chamfer in the collar area**
- ▶ **Suit moment 40-60 Nm**
- ▶ **Density test by safety standards authority (TÜV) automotives**
- ▶ **Metallurgical report availably**

Flowdrill application for Diesel Exhaust System Sensor



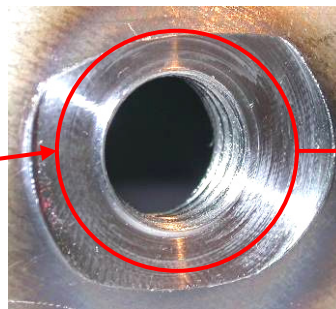
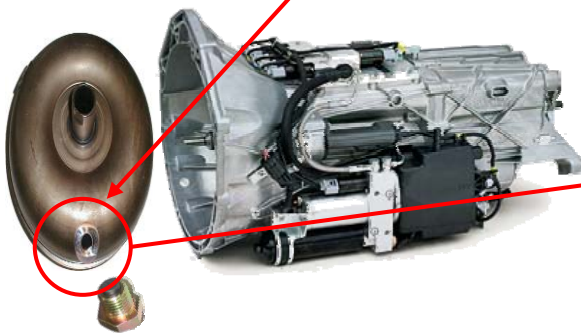
Specifications

Material	Aluminized Stainless
Form	Round Tube
Size	.045 inch thickness
Thread	5/8-11 UNC
Flowdrill	FD147L - Special

Exception Extra long (L5) to allow penetration of inner tube. Gap between tubes is approx. .500 inch.

- ▶ Replaces welding connection
- ▶ Extremely cost effective
- ▶ Safe connection
- ▶ Easy to adjust
- ▶ Higher flexibility

Flowdrill for the oil-drain plug



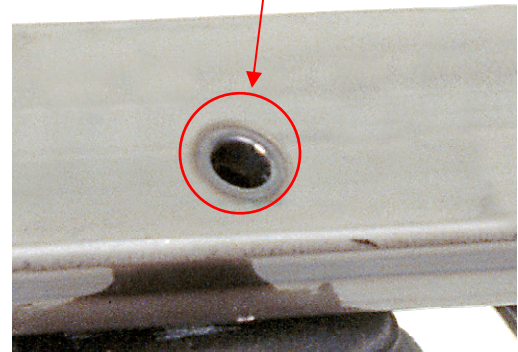
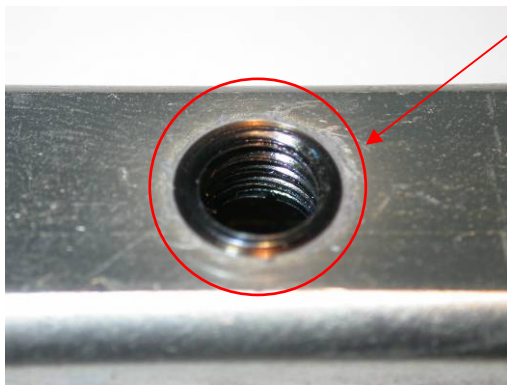
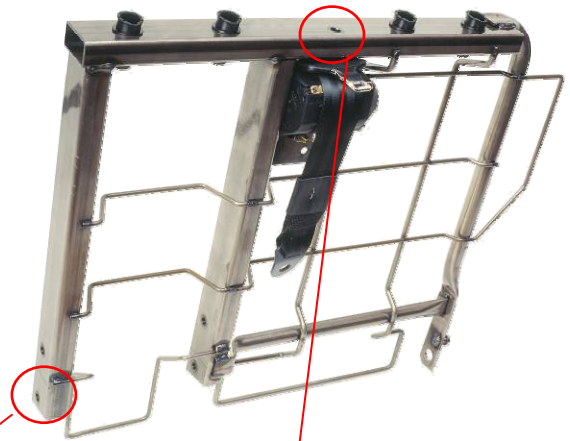
Specifications

Material	Steel
Form	Round sheet
Size	~ 207x30x4,0 mm
Thread	M12x1,5
Flowdrill	FD 11,2 Long Flat

Exception

- ▶ **Flowdrill Technology enables the best position for the oil-drain plug**
- ▶ **Thereby the oil bin is emptied totally**
- ▶ **Large sealing surface of the surface**

Flowdrill for threads and threadforming screws



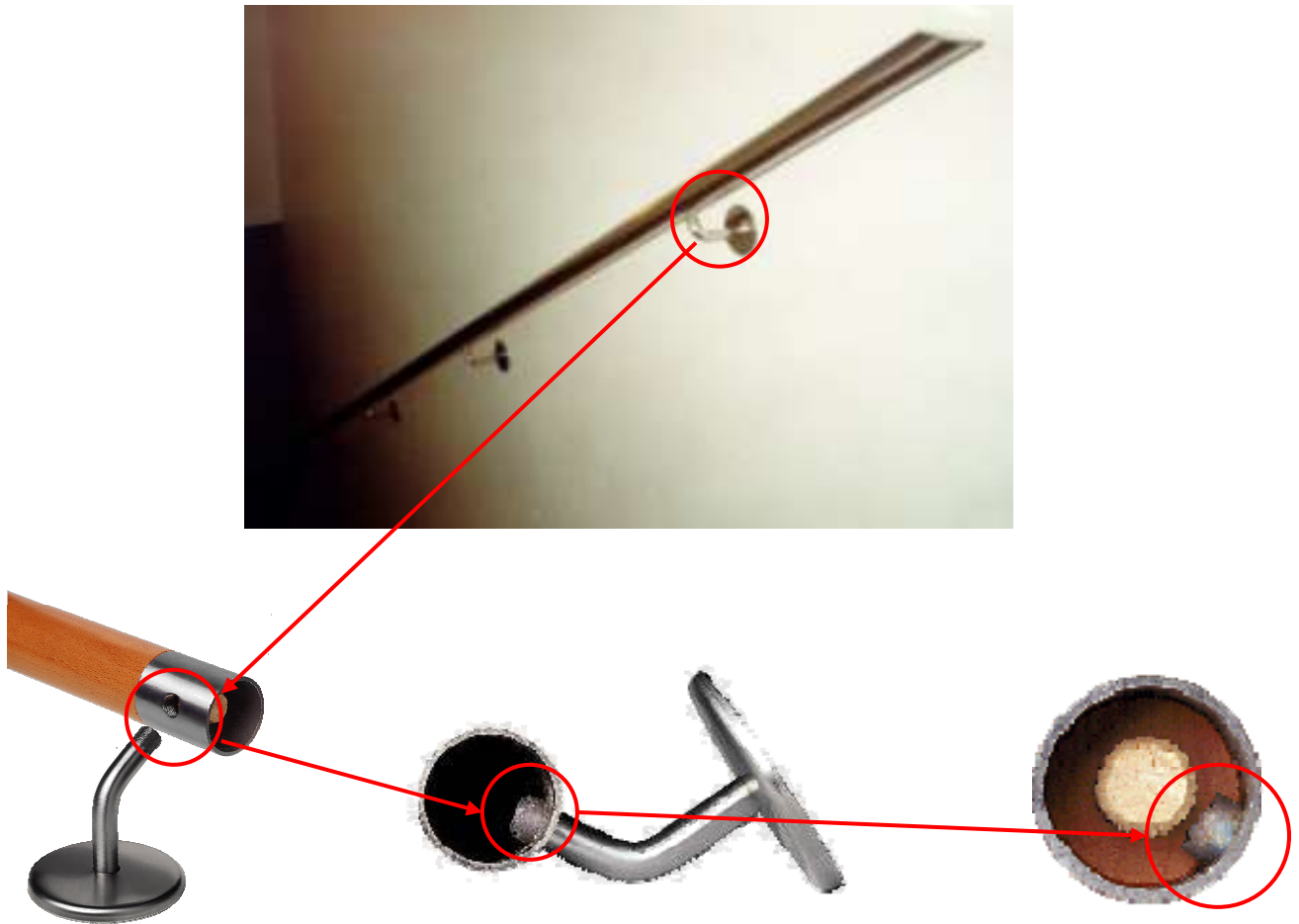
Spezifikationen

Material	Stahl
Form	Vierkant
Size	60 x 30 x 2,0 mm
Thread	M 8
Flowdrill	FD 7,3 Kurz Flach

Exception

- ▶ Application in serial production
- ▶ Solvable and high-qualitative connection
- ▶ Lowering of the system costs
- ▶ Drilling of 2 sides as a passageway hole

Flowdrill to fix the handrail



Specifications

Material	Stainless Steel
Form	Round pipe
Size	42,4 x 2 mm
Thread	M 8
Flowdrill	FD 7,4 Long

Exceptions

- ▶ Solvable and high-qualitative connection
- ▶ Lowering of the system costs
- ▶ Flowdrill technology replaces for original procedure (Welding connection)

Flowdrill as bearing sleeve for car-steering systems



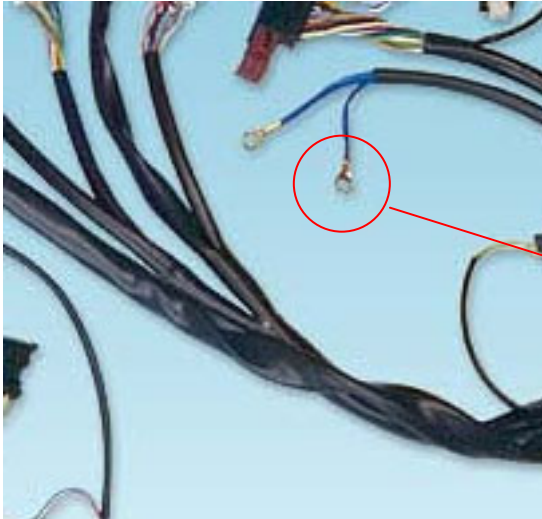
Specifications

Material	Q St E 260
Form	Oval Pipe
Size	Different
Thread	-
Flowdrill	FD 14,7 Long Special

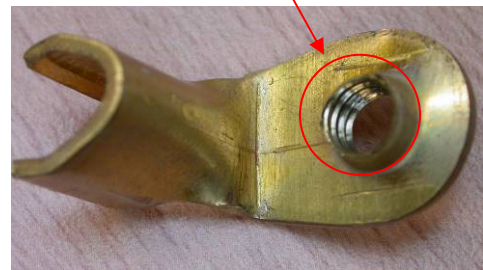
Exceptions

- ▶ **Drilling from 2 sides as a feedthrough**
- ▶ **Flowdrill as bearing sleeve**
- ▶ **High resilience by bigger contact Area**
- ▶ **Application in serial production**

Flowdrill with thread for mounting the cables



Before:
Press nut



After:
Flowdrill with thread

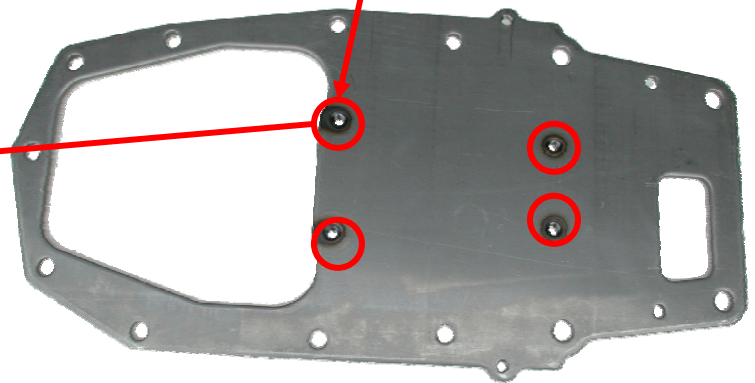
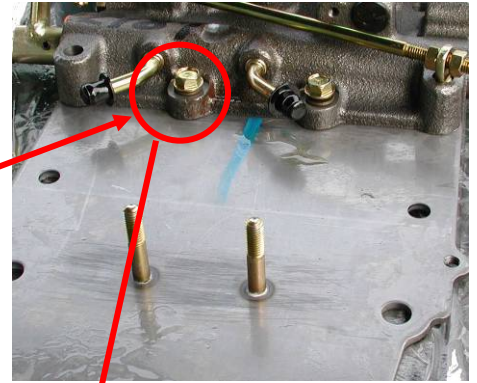
Specification

Material	Brass
Form	Profile
Size	1,6 mm
Thread	M 5
Flowdrill	FD 4,5 Short Flat

Exception

- ▶ **Flowdrill technology replaced the traditional method of an insert**
- ▶ **Extremely stable screw combination, e.g., in the engine space!**
- ▶ **Lowering the system costs**

Flowdrill with thread for the engine connection



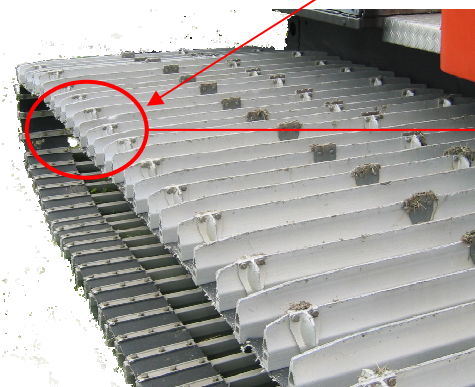
Specification

Material	St 37
Form	Blech
Size	8,0 mm dick
Thread	M12
Flowdrill	FD 10,9 Lang Flach

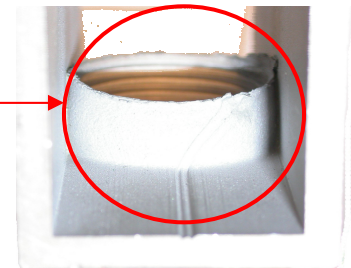
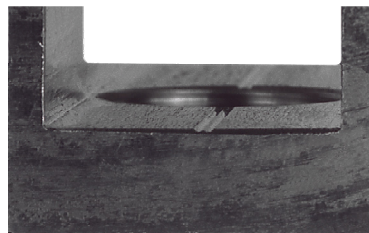
Exception

- ▶ Flowdrill technology replaced the traditional method of an insert
- ▶ Application in the serial production
- ▶ Lowering of the system costs

Flowdrill for mounting the fins



Before:



After

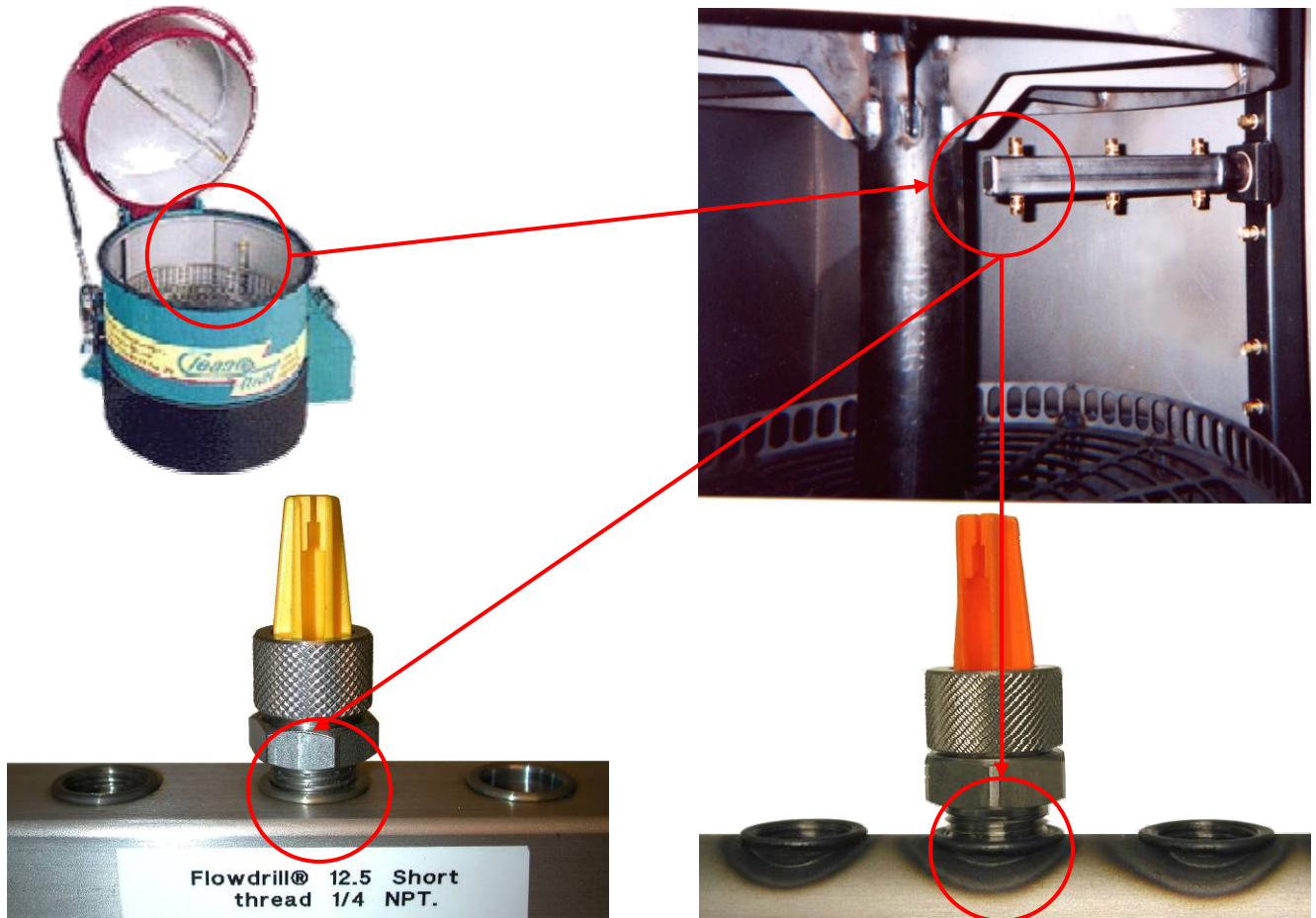
Specification

Material	Steel
Form	Pipe
Size	100x60x4,0 mm
Thread	M12
Flowdrill	FD 10,9 Long Flat

E

- ▶ Quick change of damaged segments by strong thread
- ▶ Solvable and high-qualitative connection
- ▶ Lower cost of materials by Flow-drill technology

Flowdrill with thread as branch



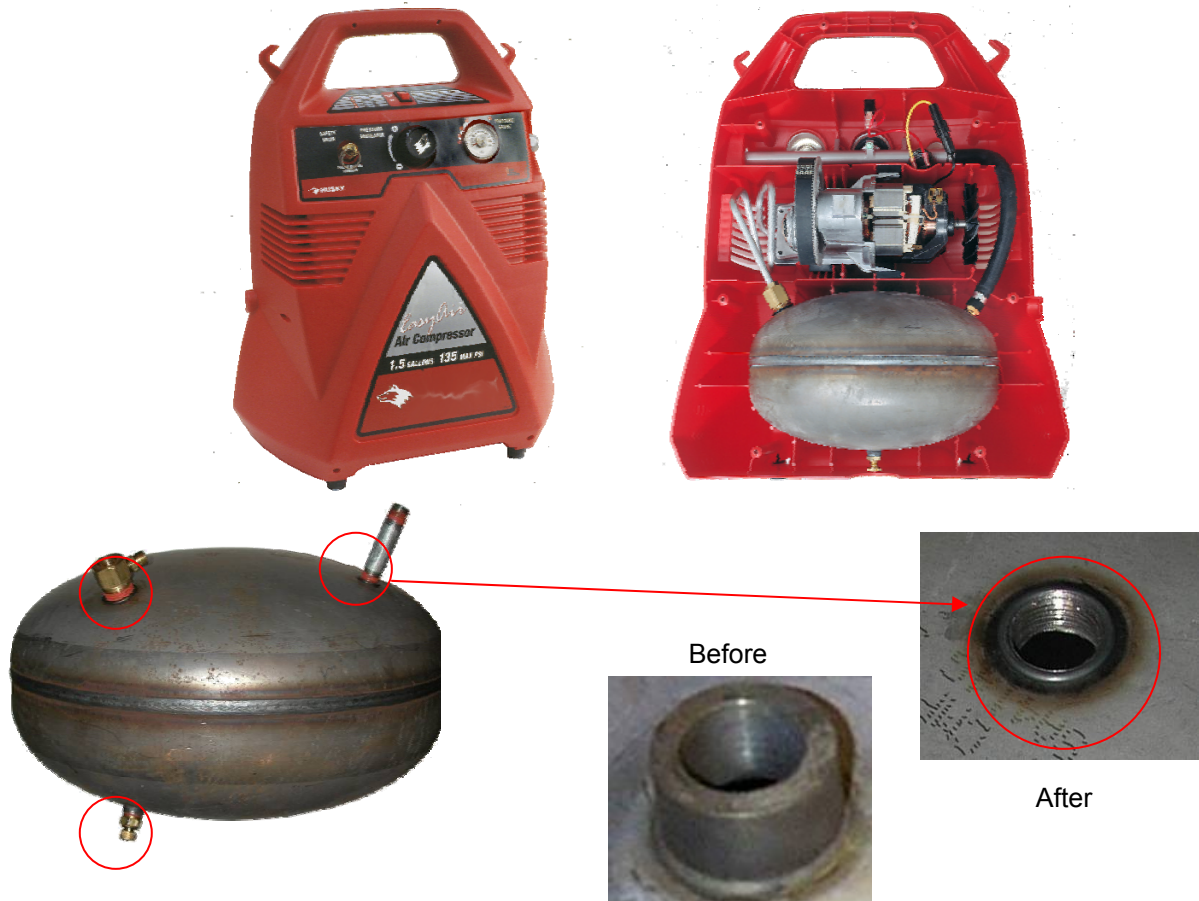
Specification

Material	Stainless Steel
Form	Round- and square pipe
Size	
Thread	NPT 1/4"
Flowdrill	FD 12,5 Short

Exception

- ▶ **Sealing connection by Flowdrill collars**
- ▶ **Application in the serial production**
- ▶ **Lowering of the system costs**

Flowdrill for connecting and for drain holes



Specifications

Material	Steel
Form	Round Tin
Size	12" O.D. x 125"
Thread	NPT 1/4" and NPT 1/2"
Flowdrill	FD12,4 Long/ FD19,6 Long

Exception

- ▶ **Cost effective replacement of primary process (welding nut) by Flowdrill technology**
- ▶ **Close-fitting connection by Flowdrill Collar**