



M&S bends are used to change the direction in hygienic pipe sections in the food, chemical, cosmetic and pharmaceutical industries.

For aseptic applications, bends are available in orbital weldable version and in different hygienic classes. Depending on the area of application, the operating conditions and the hygienic requirement, the right version, a suitable material and the required quality must be selected.

Variations of bends

BL Bends



Fig. 1

Usage

Features

Versions

- Change of direction in pipeline sections for product and energy piping.
- Versions available for deflecting piggable pipeline sections.
- For switching pipeline routes on panels (coupling bends).
- Construction of pipe structures, racks, railings and handrails.

Usage

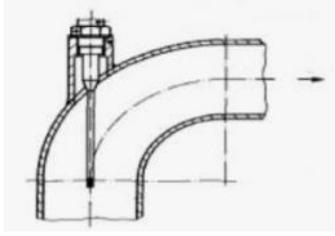
Features

Versions

- Very extensive stock programme in different versions, dimensions and qualities according to standard.
- Manufactured from longitudinally welded pipes in annealed (BC*) or non-annealed version (CC).
- Compliance with angle and dimensional tolerances as well as ovality specifications guarantee welding without stresses and offsets.
- Versions for the production of piggable piping systems are available.

* Higher corrosion resistance against pitting corrosion when using moulded parts made of annealed material or in a post-annealed version (BC).



Usage	Features	Versions
<ul style="list-style-type: none"> • Standards <ul style="list-style-type: none"> * Standards DIN11865, DIN11867, DIN EN10374 (DIN11852) • Design <ul style="list-style-type: none"> * Angle 90°, 45° and 180° * Radii <ul style="list-style-type: none"> ◆ 1,5 D (1,5 x diameter D), <ul style="list-style-type: none"> ◇ Standard welding bend (figure 2) ◇ Standard welding bend with thermometer connection (figure 6) ◇ Expanding bend with extended pipe ends for rolling in (figure 4) ◇ BL-bends with orbital welding ends (figure 1) ◆ 3 D (3 x diameter D) <ul style="list-style-type: none"> ◇ Welding bend with larger radius ◆ 5 D (5 x diameter D, figure 3) <ul style="list-style-type: none"> ◇ Welding bend with very large radius • Sizes <ul style="list-style-type: none"> * DN 10 - DN 200 (1/2" - 4") • Pipe connection <ul style="list-style-type: none"> * Welding ends (standard) for pipes according to DIN EN 10357, other dimensions available: Inch, ISO * Also available with orbital welding ends DIN 11865 for pipes according to DIN 11866 (figure 1). * With M&S-connecting parts (90°, 45°, 180°) <ul style="list-style-type: none"> ◆ CC (clamp-clamp) ◆ MM (male-male) ◆ ML (male-liner/nut) ◆ LL (liner/nut-liner/nut), e.g. swivel bend 180° (figure 5) • Permissible pressure (DIN 11852, only for temperatures up to 150°C) <ul style="list-style-type: none"> * DN 10 - DN 50: 25 bar * DN 65 - DN 100: 16 bar * DN 125 - DN 200: 10 bar • Materials <ul style="list-style-type: none"> * Standard: 1.4404/AISI 316L, 1.4307/AISI 304L * Other stainless steels, titanium or hastelloy • Surfaces <ul style="list-style-type: none"> * DIN 11865: hygienic classes H2-H5 * DIN EN 10374 (DIN 11852): <ul style="list-style-type: none"> Inside surface roughness $Ra \leq 1,6 \mu m$ Weld seam area $Ra \leq 3,2 \mu m$ Outside surface roughness $Ra \leq 3,2 \mu m$ * Standard: metal blank, mat blasted, others available. • Certification <ul style="list-style-type: none"> * Certificate 2.2 acc. to DIN EN10204 * Inspection certificate 3.1 acc. to DIN EN10204 for the primary material 		<p>Fig. 2 </p> <p>Fig. 3 </p> <p>Fig. 4 </p> <p>Fig. 5 </p> <p>Fig. 6 </p>