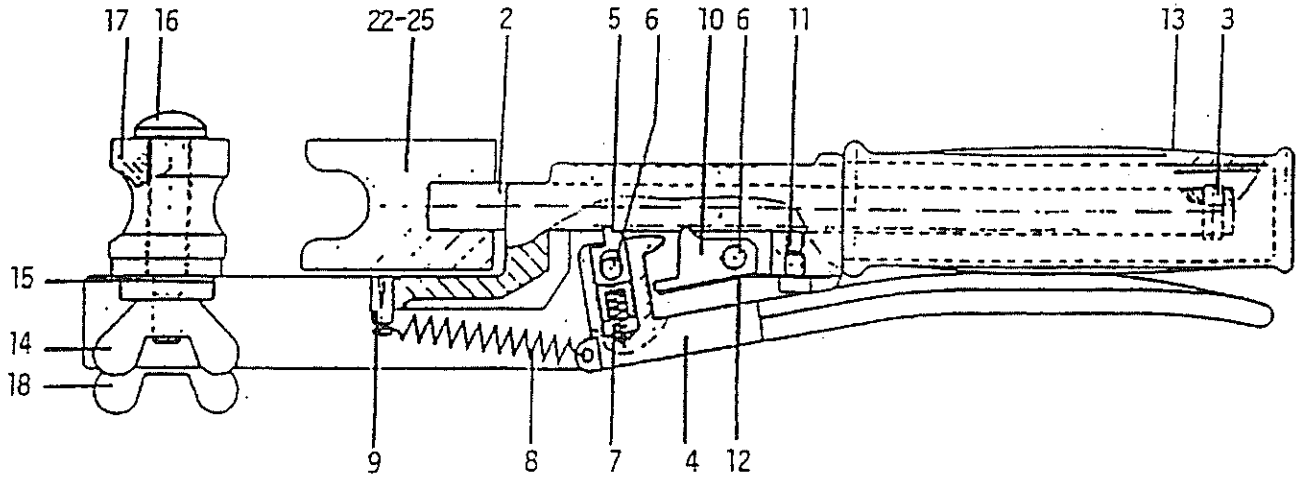
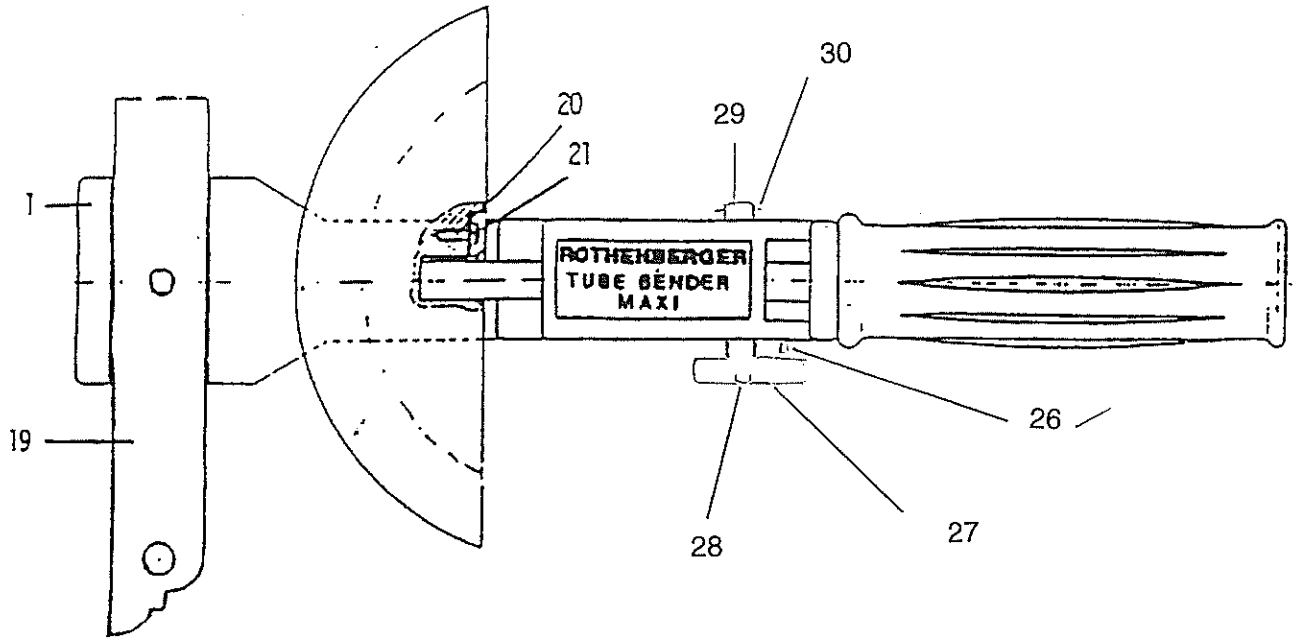
TUBE BENDER MAXI - ART. NO. 2.3020





POS	STK	BEZEICHNUNG		TEIL NO.
1	1	ALU-KÖRPER		2.3042
2	1	ZAHNSTANGE		2.3028
3	1	STIFT		2.3036
4	1	GRIFF		2.3078
5	1	RATSCHENKLINKE		2.3099
6	2	FEDERSTIFT		2.3039
7	1	DRUCKFEDER		2.3034
8	1	FEDER		2.3027
9	1	KERBSTIFT		2.3035
10	1	KLINKE		2.3031
11	1	SCHRAUBE		2.3040
12	1	FLACHFEDER		2.3033
13	1	GUMMIGRIFF		9.8970
14	2	FLÜHRUNGSSTIFT		2.3016
15	2	FEDERRINGE		2.3019
16	2	FÜHRUNGSTIFT		2.3018
17	2	GEGENHAL TERSTIFT LINKS UND RECHTS		2.3047
18	1	FLÜGELSCHRAUBE		2.3017
19	1	TRAVERSE		2.3015
20	4	SELBSTSCHNEI-DENDE SCHRAUBE		2.3043
21	4	HALTEFEDER		2.3025
22	1	SEGMENT	12MM	2.3002
23	1	SEGMENT	15MM	2.3004
24	1	SEGMENT	18MM	2.3006
25	1	SEGMENT	22MM	2.3007
26		ZYLINDERTIFT		8.2404
27		GRIFF		8.2401
28		SCHRAUBE		8.2403
29		WELLE		8.2402
30		SICHERUNGS RING		8.2480

ROTHENBERGER

ROTHENBERGER Werkzeuge AG
Industriestrasse 7, D-65779 Kelkheim
Tel. (0) 6195 - 8001, Fax: (0) 6195 74422
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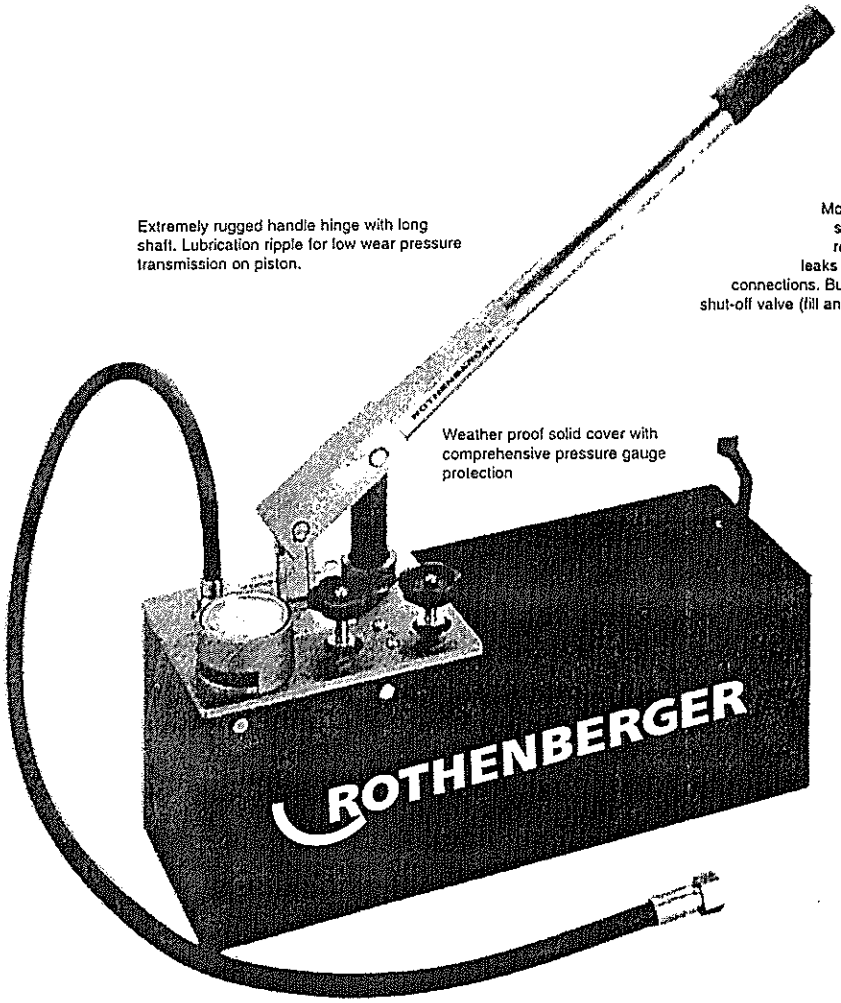
RP 50 Testing Pump

Testing pump for quick precision testing of pressure or airtightness in pipework systems and containers used in plumbing and heating installations. Also for compressed air, steam, cooling, oil and sprinkler installations. Applications also in the field of boiler and pressure vessel manufacture. No fitter should be without one. Filling and pressure testing in one operation.

Testing and pressure range:	0 - 60 bar, 1 bar steps 0 - 860 psi, 20 psi steps 0 - 6 MPa, 0,1 MPa steps
Tank capacity:	12 litres
Suction capacity:	approx 45 ml/stroke
Dimensions:	720 x 170 x 260 mm
Connections:	R½"

Features

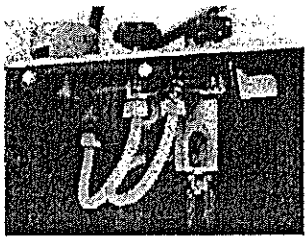
- Pressure test using oil and water
- Weather and cold proof galvanised tank. Additionally protected with epoxy coating.
- High volume feed for quick filling on long stroke. Fine precision pressure equalisation and adjustment on short stroke.
- Distortion proof handle with ergonomic rubber grip doubles as carrying handle
- Specially ground distortion free polyamide piston, 30 mmø, wear resistant
- Twin valve system and value spindle with rust-proof ball head ensure constant pressure levels.
- Test hose manufactured from steel reinforced material to reduce measurement errors
- 5 year rust free guarantee on tank.



Extremely rugged handle hinge with long shaft. Lubrication ripple for low wear pressure transmission on piston.

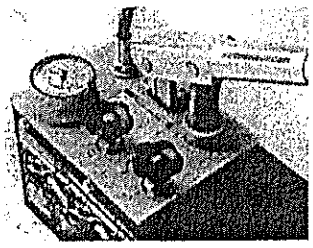
Weather proof solid cover with comprehensive pressure gauge protection

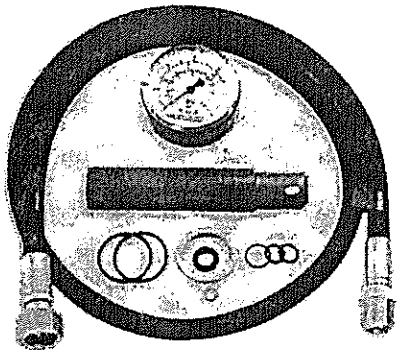
Monoblock brass shut-off system reducing risk of leaks from threaded connections. Built-in precision shut-off valve (fill and drain valve).



Long piston guides with o-ring seal and dirt scraper. Suction filter protects against dirt and wear. One way flow.

Large pressure gauge, easy to read, fine scale, 3 measurements (bar, psi, MPa)





RP 50 Testing Pump

Description	pressure	kg	No.
RP 50 Testing pump	60 bar	8.0	6.1004

Spare parts	g	No.
Replacement pressure gauge, ¼" connection	100	6.1315
Replacement piston	120	6.1300
Seal set	20	6.1301
High pressure hose, ½" connection	490	6.1306

ROTHENBERGER

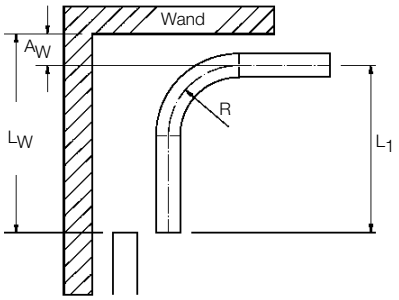
Biege-Tabellen

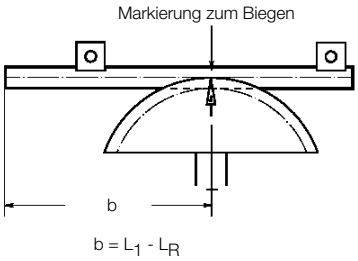
Berechnungs-Beispiel Stoßbiegen:

L_W = 1200 mm
A_W = 30 mm
Rohr-Ø 12 mm, 90° Bogen
TUBE BENDER MAXI

Gesucht:
Schenkellänge L_1 = ?? mm
Biegepunkt b = ?? mm

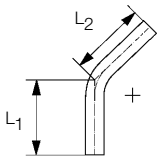
Lösung:
Schenkellänge $L_1 = L_W - A_W$ = 1200 - 30 = 1170,0 mm
Biegepunkt $b = L_1 - L_R$ = 1170 - 7,5 = 1162,5 mm



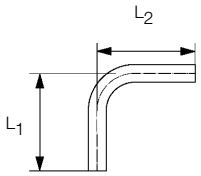


$b = L_1 - L_R$

L_1 / L_2 = Schenkellänge
b = Biegepunkt
L = Gesamtlänge
R = Radius
L_W = Länge / Ende Rohr-Wand
A_W = Abstand / Wand-Mitte Rohr
$L_1 = L_W - A_W$
$b = L_1 - L_R$
$L = L_1 + L_2 - L_M$



b = Biegepunkt
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$b = L_1 - L_R$



b = Biegepunkt
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$b = L_1 - L_R$

Alle angegebenen Maße sind Richtmaße in Abhängigkeit von Werkstoff und Wandstärke.

TUBE BENDER		**bei 45°**		**bei 90°**		**bei 180°**	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
4,75/5	20,0	4,5	1,0	4,5	10,0	-	-
6	23,5	5,0	1,2	5,0	11,5	-	-
8	28,0	7,0	1,4	7,0	14,0	-	-
9	30,0	7,0	1,5	7,0	15,0	-	-
10	34,0	7,5	1,8	7,5	17,5	-	-
12	37,5	8,5	1,9	8,5	19,0	-	-
						-	-
3/16"	20,0	4,5	1,0	4,5	10,0	-	-
1/4"	23,5	5,0	1,2	5,0	11,5	-	-
5/16"	28,0	7,0	1,4	7,0	14,0	-	-
3/8"	34,0	7,5	1,8	7,5	17,5	-	-
1/2"	37,5	8,5	1,9	8,5	19,0	-	-

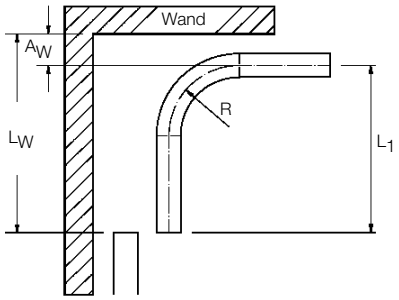
TUBE BENDER MAXI		**bei 45°**		**bei 90°**		**bei 180°**	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
12	35,0	0,8	10,0	7,5	35,0	-	-
14	42,5	0,9	12,5	9,0	42,5	-	-
15	48,5	1,1	14,0	10,5	48,5	-	-
16	49,0	1,1	14,5	10,5	49,0	-	-
18	74,0	1,7	22,0	16,0	74,0	-	-
22	87,0	1,9	25,5	18,5	87,0	-	-
						-	-
3/8"	35,0	0,8	10,0	7,5	35,0	-	-
1/2"	35,0	0,8	10,0	7,5	35,0	-	-
5/8"	49,0	1,1	14,5	10,5	49,0	-	-
3/4"	74,0	1,7	22,0	16,0	74,0	-	-
7/8"	87,0	1,9	25,5	18,5	87,0	-	-

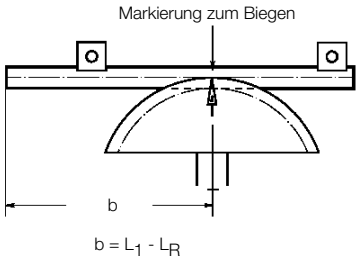
Berechnungs-Beispiel Stoßbiegen:

L_W = 1200 mm
A_W = 30 mm
Rohr-Ø 12 mm, 90° Bogen
TUBE BENDER MAXI

Gesucht:
Schenkellänge L_1 = ?? mm
Biegepunkt b = ?? mm

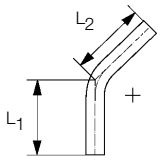
Lösung:
Schenkellänge $L_1 = L_W - A_W$ = 1200 - 30 = 1170,0 mm
Biegepunkt $b = L_1 - L_R$ = 1170 - 7,5 = 1162,5 mm



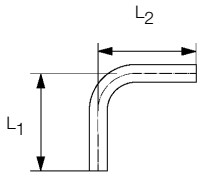


$b = L_1 - L_R$

L_1 / L_2 = Schenkellänge
b = Biegepunkt
L = Gesamtlänge
R = Radius
L_W = Länge / Ende Rohr-Wand
A_W = Abstand / Wand-Mitte Rohr
$L_1 = L_W - A_W$
$b = L_1 - L_R$
$L = L_1 + L_2 - L_M$



b = Biegepunkt
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$b = L_1 - L_R$



b = Biegepunkt
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$b = L_1 - L_R$

Alle angegebenen Maße sind Richtmaße in Abhängigkeit von Werkstoff und Wandstärke.

TUBE BENDER MAXI Verbundrohr		**bei 45°**		**bei 90°**		**bei 180°**	
Rohr Ø / Ws mm	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
14 x 2,0	42,5	0,9	12,5	9,0	42,5	-	-
16 x 2,0	49,0	1,1	14,5	10,5	49,0	-	-
18 x 2,0	49,0	1,7	22,0	16,0	49,0	-	-
25 x 2,5	74,0	2,0	26,0	19,0	74,0	-	-
32 x 3,0	128,0	2,8	26,0	27,5	74,0	-	-

TUBE BENDER MAXI CT		**bei 45°**		**bei 90°**		**bei 180°**	
Rohr Ø / Ws mm	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
10 x 0,6	42,5	0,8	12,5	9,0	42,5	-	-
12 x 0,6	49,0	1,1	14,5	10,5	49,0	-	-
15 x 0,7	74,0	1,7	22,0	16,0	74,0	-	-
18 x 0,7	87,0	1,9	25,5	18,5	87,0	-	-

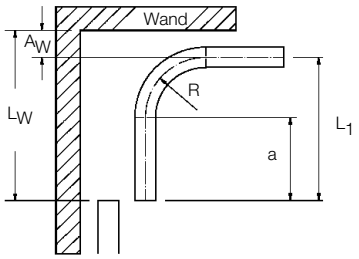
Biege-Tabellen

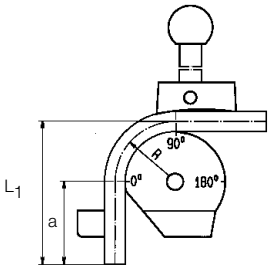
Berechnungs-Beispiel Ziehbiegen:

L_W = 1200 mm
A_W = 30 mm
Rohr-Ø 12 mm, 90° Bogen
ROBEND H + W

Gesucht:
Schenkellänge L1 = ?? mm
Anlegemaß a = ?? mm

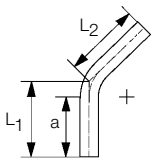
Lösung:
Schenkellänge L1 = LW - AW = 1200 - 30 = 1170 mm
Anlegemaß a = L1 - LR = 1170 - 40 = 1130 mm



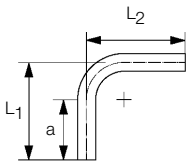


L1 / L2 = Schenkellänge
a = Anlegemaß
L = Gesamtlänge
LW = Länge / Ende Rohr-Wand
AW = Abstand / Wand-Mitte Rohr
L1 = LW - AW
a = L1 - LR
L = L1 + L 2 - LM

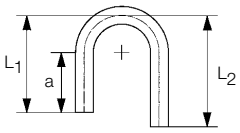
Alle angegebenen Maße sind Richtmaße in Abhängigkeit von Werkstoff und Wandstärke.



a = Anlegemaß
L = Gesamtlänge
$L = L_1 + L_2$
$a = L_1 - L_R$



a = Anlegemaß
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$a = L_1 - L_R$



a = Anlegemaß
L = Gesamtlänge
$L = L_1 + L_2 + L_M$
$a = L_1 - L_R$

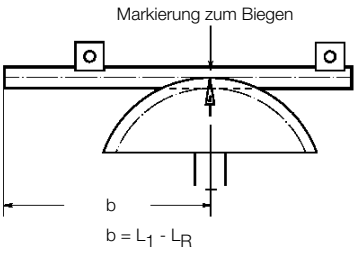
MINIBEND		**bei 45°**		**bei 90°**		**bei 180°**	
Rohr Ø / Ws mm	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
6	25,0	10,4	1,0	22,0	10,0	22,0	26,0
8	24,0	9,9	1,0	32,0	15,0	32,0	34,0
10	23,0	9,5	1,0	32,0	15,0	32,0	34,0
1/4"	25,0	10,4	1,0	22,0	10,0	22,0	26,0
5/16"	24,0	9,9	1,0	32,0	15,0	32,0	34,0
3/8"	23,0	9,5	1,0	32,0	15,0	32,0	34,0

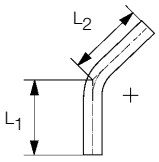
Standard - Bieger		**bei 45°**		**bei 90°**		**bei 180°**	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
6	18,0	7,0	0,8	18,5	8,0	18,5	20,0
8	24,0	9,5	1,0	24,0	12,0	24,0	27,0
10	30,0	11,5	1,3	30,5	14,5	30,5	34,0
12	36,0	14,0	1,5	36,5	15,0	36,5	37,5
14	47,5	18,5	2,0	48,5	20,5	48,5	52,5
15	54,0	21,0	2,3	56,0	24,5	56,0	58,0
16	58,0	22,5	2,5	64,0	28,5	64,0	67,0
18	66,0	25,5	2,8	68,0	31,0	68,0	72,0
1/4"	18,0	7,0	0,8	18,5	8,0	18,5	20,0
5/16"	24,0	9,5	1,0	24,0	12,0	24,0	27,0
3/8"	30,0	11,5	1,3	30,5	14,5	30,5	34,0
1/2"	42,0	16,5	1,8	49,5	22,5	49,5	53,0
5/8"	58,0	22,5	2,5	64,0	28,5	64,0	67,0

MULTIBEND		**bei 45°**		**bei 90°**		**bei 180°**	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
8	24,0	9,5	1,0	24,0	10,0	24,0	26,0
10	30,0	12,0	1,3	30,5	14,5	30,5	32,5
12	36,0	14,0	1,5	36,5	15,5	36,5	37,5
14	42,0	16,5	1,8	42,0	19,5	42,5	44,0
15	48,0	19,0	2,0	48,0	22,0	48,0	53,0
16	48,0	19,0	2,0	48,0	22,0	48,0	53,0
18	54,0	21,0	2,3	54,0	26,0	54,5	58,0

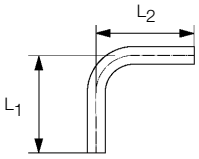
ROBEND H + W / H + W PLUS		bei 45°		bei 90°		bei 180°	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
8	22,0	9,0	-	22,0	10,0	22,0	26,0
10	32,0	12,0	-	32,0	15,0	32,0	34,0
12	38,5	15,0	-	40,0	20,0	40,0	39,0
14	45,0	17,0	-	44,0	22,0	44,0	51,0
15	45,0	17,0	-	44,0	22,0	44,0	51,0
16	64,5	25,0	-	67,0	30,0	67,0	65,0
17	64,5	25,0	-	67,0	30,0	67,0	65,0
18	64,5	25,0	-	67,0	30,0	67,0	65,0
20	81,5	30,0	-	85,0	40,0	85,0	83,0
22	81,5	30,0	-	85,0	40,0	85,0	83,0
24	81,5	30,0	-	85,0	40,0	85,0	83,0
25	81,5	30,0	-	85,0	40,0	85,0	83,0
28	116,5	43,5	-	116,5	50,0	116,5	113,0
5/16"	22,0	9,0	-	22,0	10,0	22,0	26,0
3/8"	32,0	12,0	-	32,0	15,0	32,0	34,0
1/2"	38,5	15,0	-	40,0	20,0	40,0	39,0
5/8"	64,5	25,0	-	67,0	30,0	67,0	65,0
3/4"	81,5	30,0	-	85,0	40,0	85,0	83,0
7/8"	81,5	30,0	-	85,0	40,0	85,0	83,0
1"	81,5	30,0	-	85,0	40,0	85,0	83,0
1.1/8"	116,5	43,5	-	116,5	50,0	116,5	113,0

Berechnungen für das Rohrbiege-System ROBEND 3000 können mit der ROBEND Data-Schieblehre vorgenommen werden.





b = Biegepunkt
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$b = L_1 - L_R$



b = Biegepunkt
L = Gesamtlänge
$L = L_1 + L_2 - L_M$
$b = L_1 - L_R$

Die Berechnungs-Beispiele beim Stoßbiegen gelten analog auch für die ROBULL Rohrbiege-Systeme

ROBULL Standard 90°		bei 45°		bei 90°		bei 180°	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
3/8"	45,0	1,0	2,0	10,0	20,0	-	-
1/2"	49,0	1,0	2,0	10,5	21,0	-	-
3/4"	65,0	1,5	3,0	14,0	28,0	-	-
1"	89,0	2,0	4,0	19,0	38,0	-	-
1.1/4"	115,0	2,5	5,0	25,0	50,0	-	-
1.1/2"	137,0	3,0	6,0	29,5	59,0	-	-
2"	200,0	4,0	8,0	43,0	86,0	-	-
2.1/2"	340,0	7,0	14,0	73,0	146,0	-	-
3"	530,0	11,5	23,0	114,0	228,0	-	-

ROBULL mit langen Radien		bei 45°		bei 90°		bei 180°	
für Rohr Ø mm – Zoll	Biegeradius R (mm)	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm	Rückmaß L_R mm	Mindermaß L_M mm
3/8"	55,0	1,0	2,0	12,0	24,0	-	-
1/2"	82,0	2,0	3,5	17,0	34,0	-	-
3/4"	111,0	2,5	5,0	24,0	48,0	-	-
1"	141,0	3,0	6,0	30,5	61,0	-	-
1.1/4"	177,0	4,0	8,0	38,0	76,0	-	-
1.1/2"	210,0	4,5	9,0	45,0	90,0	-	-
2"	242,0	5,0	10,0	52,0	104,0	-	-