

R/30

Per piastre tubiere di piccolo spessore

For low thickness tube-sheets

Pour plaques tubulaires de petite épaisseur

Für Rohrböden mit geringer Stärke



$RE_{min} = 3/8"$ (9,5 mm)

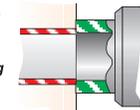
$RE_{max} = 1.1/4"$ (31,8 mm)

Testa di battuta

Thrust collar
Tête de butée
Anschlagkopf



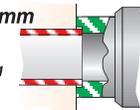
0 a battuta piana
with plane shoulder
à butée plane
mit flachem Anschlag



017 ÷ 16/A

V = 0

1 con incavo a 3 mm
with 3 mm recess
avec entaille à 3 mm
mit 3 mm Eindrehung

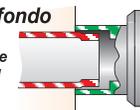


011 ÷ 16/A

V = 3 mm

(0.118")

2 con incavo profondo
with deep recess
avec entaille profonde
mit tiefer Eindrehung



011 ÷ 3/B

Vmax = 15 mm

5 ÷ 11 (0.590")

Vmax = 20 mm

(0.787")

12 ÷ 16/A

Vmax = 26 mm

(1.024")

Codice d'esempio per ordinazione mandrini

Sample code for ordering tube expanders
Code d'exemple pour commande dudgeons
Bestellnr. Bestellbeispiel Rohrwalze

de 1" - 12 B.W.G.

$L_t = 38,1 \text{ mm}$ 1.1/2"

$L_u = 31,8 \text{ mm}$ 1.1/4"

$L_d = 26,0 \text{ mm}$ 1.024"

$L_x = 22,0 \div 28,0 \text{ mm}$ 0.866" ÷ 1.102"

STD → R30.#-7

DLS → R30.#-7-DLS

DLX → R30.#-7-DLX-L_x

Tubo
Tube
Tube
Rohr

| de inches mm | B.W.G. | sp | | di | | Espansione | | Mandrino Tube expander Dudgeon Rohrwalzen Cod. | Rulli Rolls Galets Rollen Cod. | Spina Mandrel Broche Dorn Cod. | Elettriche Electrical Electriques elektrisch | Pneumatiche Pneumatic Pneumatiques pneumatisch |
|--------------------|--------|--------|------|--------|------|---------------|-------------|--|--|--|---|---|
| | | inches | mm | inches | mm | inches | mm | | | | | |
| 1/2" (12,7) | 14 | 0.083 | 2,11 | 0.315 | 8,0 | 0.307 ÷ 0.354 | 7,8 ÷ 9,0 | R30.0-017 | 017-C | 4-017÷012 | F90 MS/40 M4/V MS/60 | Macrol 750 |
| | | | | 0.323 | 8,2 | 0.315 ÷ 0.362 | 8,0 ÷ 9,2 | R30.0-016 | 016-C | | | |
| | | | | 0.342 | 8,7 | 0.323 ÷ 0.370 | 8,2 ÷ 9,4 | R30.0-015 | 015-C | | | |
| | | | | 0.356 | 9,0 | 0.331 ÷ 0.378 | 8,4 ÷ 9,6 | R30.0-014 | 014-C | | | |
| | | | | 0.362 | 9,2 | 0.338 ÷ 0.386 | 8,6 ÷ 9,8 | R30.0-013 | 013-011-C | | | |
| | | | | 0.378 | 9,6 | 0.346 ÷ 0.393 | 8,8 ÷ 10,0 | R30.0-012 | 012-010-C | | | |
| | | | | 0.384 | 9,7 | 0.354 ÷ 0.409 | 9,0 ÷ 10,4 | R30.#-011 | 013-011-C | | | |
| | | | | 0.397 | 10,0 | 0.362 ÷ 0.417 | 9,2 ÷ 10,6 | R30.#-010 | 012-010-C | | | |
| | | | | 0.402 | 10,2 | 0.370 ÷ 0.425 | 9,4 ÷ 10,8 | R30.#-09 | 09-C | | | |
| | | | | 0.417 | 10,6 | 0.378 ÷ 0.441 | 9,6 ÷ 11,2 | R30.#-00 | 00-C | | | |
| | | | | 0.430 | 10,9 | 0.397 ÷ 0.460 | 10,1 ÷ 11,7 | R30.#-00/A | 00/A-C | | | |
| | | | | 0.456 | 11,6 | 0.417 ÷ 0.480 | 10,6 ÷ 12,2 | R30.#-01 | 01-C | | | |
| 5/8" (15,9) | 12 | 0.109 | 2,77 | 0.407 | 10,3 | 0.378 ÷ 0.441 | 9,6 ÷ 11,2 | R30.#-00-M | 00-C | 4-00 | F90 MS/40 M4/V MS/60 | Macrol 750 |
| | | | | 0.421 | 10,7 | 0.397 ÷ 0.460 | 10,1 ÷ 11,7 | R30.#-00/A-M | 00/A-C | | | |
| | | | | 0.435 | 11,1 | 0.417 ÷ 0.480 | 10,6 ÷ 12,2 | R30.#-01-M | 01-C | | | |
| | | | | 0.459 | 11,7 | 0.437 ÷ 0.500 | 11,1 ÷ 12,7 | R30.#-01/A-M | 01/A-C | | | |
| | | | | 0.481 | 12,2 | 0.452 ÷ 0.523 | 11,5 ÷ 13,3 | R30.#-02-M | 02-C | | | |
| | | | | 0.495 | 12,6 | 0.472 ÷ 0.543 | 12,0 ÷ 13,8 | R30.#-02/A-M | 02/A-C | | | |
| | | | | 0.509 | 12,9 | 0.492 ÷ 0.571 | 12,5 ÷ 14,5 | R30.#-03-M | 03-C | | | |
| | | | | 0.527 | 13,4 | 0.512 ÷ 0.590 | 13,0 ÷ 15,0 | R30.#-04-M | 04-C | | | |
| | | | | 0.555 | 14,1 | 0.531 ÷ 0.610 | 13,5 ÷ 15,5 | R30.#-1-M | 1-1/A-C | | | |
| | | | | 0.569 | 14,5 | | | | | | | |

Mandrinatrici consigliate

Suggested rolling machines
Dudgeonneuses conseillées
Empfohlene Rohrwalzanlagen

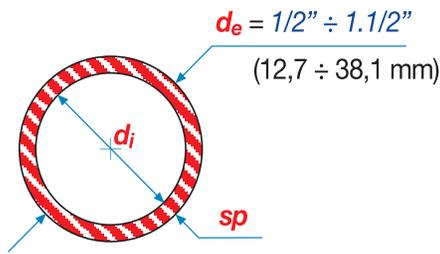


Rif. 5R/70
Ref. 5R/70
Ref. 5R/70
Siehe 5R/70



Consigliate
Suggested
Conseillées
Empfehlung

Possibili
Possible
Possibles
Variationsmöglichkeiten

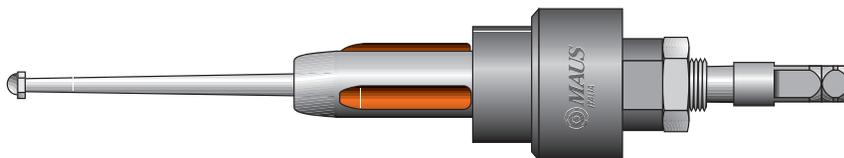


Tubo
Tube
Tube
Rohr

Mandrinatrici consigliate
Suggested rolling machines
Dudgeonneuses conseillées
Empfohlene Rohreinwalzanlagen

| d_e inches mm | sp | | d_i | | Espansione Expansion Expansion Walzbereich | | Mandrino Tube expander Dudgeon Rohrwalzen | Rulli Rolls Galets Rollen | Spina Mandrel Broche Dorn | $\frac{\Delta}{inches}$ mm | Elettriche Electrical Electriques elektrisch | Pneumatiche Pneumatic Pneumatiques pneumatisch |
|-----------------------|--------|--------|-------|--------|---|---------------|--|------------------------------------|------------------------------------|-------------------------------|---|---|
| | B.W.G. | inches | mm | inches | mm | inches | mm | Cod. | Cod. | | | |
| 3/4" (19,0) | 10 | 0.134 | 3,40 | 0.482 | 12,2 | 0.452 ÷ 0.523 | 11,5 ÷ 13,3 | R30.-#-02 | 02-C | 4-02÷02/A | F90 + M4/V M4/L MS/40 | Macrol 450 |
| | | | | 0.492 | 12,5 | 0.472 ÷ 0.543 | 12,0 ÷ 13,8 | R30.-#-02/A | 02/A-C | | | |
| | 11 | 0.120 | 3,05 | 0.510 | 12,9 | 0.492 ÷ 0.571 | 12,5 ÷ 14,5 | R30.-#-03 | 03-C | | | |
| | | | | 0.532 | 13,4 | 0.512 ÷ 0.590 | 13,0 ÷ 15,0 | R30.-#-04 | 04-C | 4-03÷1 | Matex | |
| | 12 | 0.109 | 2,77 | 0.560 | 14,2 | 0.531 ÷ 0.610 | 13,5 ÷ 15,5 | R30.-#-1 | 1-1/A-C | | | |
| | | | | 0.584 | 14,8 | 0.551 ÷ 0.639 | 14,0 ÷ 16,2 | R30.-#-1/A | 1-1/A-C | 4-1/A | Matex | |
| | 13 | 0.095 | 2,41 | 0.606 | 15,3 | 0.570 ÷ 0.669 | 14,5 ÷ 17,0 | R30.-#-2 | 2-C | | | |
| | | | | 0.620 | 15,7 | 0.590 ÷ 0.689 | 15,0 ÷ 17,5 | R30.-#-2/A | 2/A-C | 4-2÷3/B | F90 + M4/V MP/1 MS/60 | Macrol 750 |
| | 14 | 0.083 | 2,11 | 0.652 | 16,5 | 0.610 ÷ 0.709 | 15,5 ÷ 18,0 | R30.-#-3 | 3-C | | | |
| | 15 | 0.072 | 1,83 | 0.680 | 17,2 | 0.630 ÷ 0.728 | 16,0 ÷ 18,5 | R30.-#-3/A | 3/A-C | | | |
| 16 | 0.065 | 1,65 | 0.700 | 18,0 | 0.650 ÷ 0.748 | 16,5 ÷ 19,0 | R30.-#-3/B | 3/B-C | | | | |
| 7/8" (22,2) | 10 | 0.134 | 3,40 | 0.607 | 15,4 | 0.570 ÷ 0.669 | 14,5 ÷ 17,0 | R30.-#-2-M | 2-C | 4-2÷3/B | F90 + M4/V M4/L MS/40 | Macrol 450 |
| | | | | 0.635 | 16,1 | 0.610 ÷ 0.709 | 15,5 ÷ 18,0 | R30.-#-3-M | 3-C | | | |
| | 11 | 0.120 | 3,05 | 0.657 | 16,6 | 0.630 ÷ 0.728 | 16,0 ÷ 18,5 | R30.-#-3/A-M | 3/A-C | | | |
| | | | | 0.669 | 17,0 | 0.650 ÷ 0.748 | 16,5 ÷ 19,0 | R30.-#-3/B-M | 3/B-C | 4-5÷6 | Matex | |
| | 12 | 0.109 | 2,77 | 0.685 | 17,4 | 0.681 ÷ 0.799 | 17,3 ÷ 20,3 | R30.-#-5-M | 5-C | | | |
| | | | | 0.709 | 18,0 | 0.700 ÷ 0.812 | 17,8 ÷ 20,8 | R30.-#-5/A-M | 5/A-C | 4-7÷8/A | F90 + M4/V M4/L MS/60 MP/1 | Macrol 750 |
| | 13 | 0.095 | 2,41 | 0.720 | 18,3 | 0.720 ÷ 0.838 | 18,3 ÷ 21,3 | R30.-#-6-M | 6-7-C | | | |
| | | | | 0.745 | 18,9 | 0.748 ÷ 0.866 | 19,0 ÷ 22,0 | R30.-#-7-M | 6-7-C | 4-7÷8/A | Matex | |
| | 14 | 0.083 | 2,11 | 0.777 | 19,7 | 0.777 ÷ 0.895 | 19,7 ÷ 22,7 | R30.-#-8-M | 8-C | | | |
| | 15 | 0.072 | 1,83 | 0.805 | 20,4 | 0.791 ÷ 0.909 | 20,4 ÷ 23,4 | R30.-#-9-M | 9-C | | | |
| 16 | 0.065 | 1,65 | 0.811 | 20,6 | 0.811 ÷ 0.929 | 20,6 ÷ 23,6 | R30.-#-10-M | 10-C | | | | |
| 1" (25,4) | 8 | 0.165 | 4,19 | 0.670 | 17,0 | 0.650 ÷ 0.748 | 16,5 ÷ 19,0 | R30.-#-3/B-S | 3/B-C | 4-2÷3/B | F90 + M4/L MS/30 M4/V | Macrol 450 |
| | | | | 0.685 | 17,4 | 0.681 ÷ 0.799 | 17,3 ÷ 20,3 | R30.-#-5 | 5-C | | | |
| | | | | 0.704 | 17,9 | 0.700 ÷ 0.812 | 17,8 ÷ 20,8 | R30.-#-5/A | 5/A-C | 4-5÷6 | Matex | |
| | 9 | 0.148 | 3,76 | 0.732 | 18,6 | 0.720 ÷ 0.838 | 18,3 ÷ 21,3 | R30.-#-6 | 6-7-C | | | |
| | | | | 0.760 | 19,3 | 0.748 ÷ 0.866 | 19,0 ÷ 22,0 | R30.-#-7 | 6-7-C | 4-7÷8/A | F90 + M4/V M4/L MS/60 | Macrol 750 |
| | 10 | 0.134 | 3,40 | 0.782 | 19,8 | 0.767 ÷ 0.886 | 19,5 ÷ 22,5 | R30.-#-7/A | 7/A-C | | | |
| | | | | 0.791 | 20,0 | 0.787 ÷ 0.905 | 20,0 ÷ 23,0 | R30.-#-8 | 8-C | 4-9÷11 | Matex | |
| | 11 | 0.120 | 3,05 | 0.807 | 20,5 | 0.807 ÷ 0.925 | 20,5 ÷ 23,5 | R30.-#-8/A | 8/A-C | | | |
| | | | | 0.827 | 21,1 | 0.827 ÷ 0.964 | 21,0 ÷ 24,5 | R30.-#-9 | 9-C | 4-9÷11 | F90 + M4/V M4/L MS/60 | Macrol 750 |
| | 12 | 0.109 | 2,77 | 0.856 | 21,7 | 0.846 ÷ 0.984 | 21,5 ÷ 25,0 | R30.-#-9/A | 9/A-C | | | |
| | | | | 0.870 | 22,1 | 0.866 ÷ 1.004 | 22,0 ÷ 25,5 | R30.-#-10 | 10-C | 4-9÷11 | Matex | |
| | 13 | 0.095 | 2,41 | 0.930 | 23,6 | | | | | | | |
| 14 | 0.083 | 2,11 | 0.936 | 23,8 | | | | | | | | |
| 15 | 0.072 | 1,83 | 0.944 | 24,0 | | | | | | | | |

R/30



| de inches mm | sp | | di | | Espansione Expansion Expansion Walzbereich | | Mandrino Tube expander Dudgeon Rohrwalzen | Rulli Rolls Galets Rollen | Spina Mandrel Broche Dorn | inches mm | Mandrinatrici consigliate Suggested rolling machines Dudgeonneuses conseillées Empfohlene Rohreinwalzanlagen | | |
|---------------------------|-----------|--------|-----------|--------|--|---------------|---|---|---|---------------------|--|--|--|
| | B.W.G. | inches | mm | inches | mm | inches | mm | Cod. | Cod. | | Cod. | Elettriche Electrical Electriques elektrisch | Pneumatiche Pneumatic Pneumatiques pneumatisch |
| 1.1/8" (28,5) | 11 | 0.120 | 3,05 | 0.885 | 22,4 | 0.846 ÷ 0.984 | 21,5 ÷ 25,0 | R30.#-9/A-M | 9/A-C | 4-9÷11 | 3/8" (9,5) | F90 + M4/L MS/40 M4/V | Macrol 450 |
| | 12 | 0.109 | 2,77 | 0.907 | 22,9 | 0.866 ÷ 1.004 | 22,0 ÷ 25,5 | R30.#-10-M | 10-C | | | | |
| | 13 | 0.095 | 2,41 | 0.935 | 23,7 | 0.905 ÷ 1.043 | 23,0 ÷ 26,5 | R30.#-11-M | 11-C | | | | |
| | 14 | 0.083 | 2,11 | 0.959 | 24,3 | 0.945 ÷ 1.102 | 24,0 ÷ 28,0 | R30.#-12-M | 12-C | 4-12÷14/A | 1/2" (12,7) | Matex | Macrol 750 |
| | 16 | 0.065 | 1,65 | 0.995 | 25,2 | | | | | | | R30.#-12/A-M | |
| | 18 | 0.049 | 1,24 | 1.027 | 26,0 | 0.984 ÷ 1.142 | 25,0 ÷ 29,0 | R30.#-12/A-M | 12/A-C | 4-12÷14/A | 1/2" (12,7) | Matex | Macrol 450 |
| | 20 | 0.035 | 0,89 | 1.055 | 26,7 | | | | | | | | |
| 22 | 0.028 | 0,71 | 1.069 | 27,1 | | | | | | | | | |
| | | | | | | | | | | | | | |
| 1.1/4" (31,8) | 9 | 0.148 | 3,76 | 0.954 | 24,3 | 0.905 ÷ 1.043 | 23,0 ÷ 26,5 | R30.#-11 | 11-C | 4-9÷11 | 3/8" (9,5) | F90 + M4/L M4/V | Macrol 200 |
| | 10 | 0.134 | 3,40 | 0.982 | 25,0 | 0.945 ÷ 1.102 | 24,0 ÷ 28,0 | R30.#-12 | 12-C | | | | |
| | 11 | 0.120 | 3,05 | 1.010 | 25,7 | 0.984 ÷ 1.142 | 25,0 ÷ 29,0 | R30.#-12/A | 12/A-C | | | | |
| | 12 | 0.109 | 2,77 | 1.032 | 26,2 | 1.027 ÷ 1.181 | 26,0 ÷ 30,0 | R30.#-13 | 13-C | | | | |
| | 13 | 0.095 | 2,41 | 1.060 | 27,0 | 1.063 ÷ 1.220 | 27,0 ÷ 31,0 | R30.#-13/A | 13/A-C | 4-12÷14/A | 1/2" (12,7) | Matex | Macrol 450 |
| | 14 | 0.083 | 2,11 | 1.084 | 27,6 | | | | | | | | |
| | 16 | 0.065 | 1,65 | 1.120 | 28,5 | 1.102 ÷ 1.260 | 28,0 ÷ 32,0 | R30.#-14 | 14-15-C | 4-12÷14/A | 1/2" (12,7) | F90 + M4/L M4/V | Macrol 200 |
| | 17 | 0.058 | 1,47 | 1.134 | 28,8 | | | | | | | | |
| 18 | 0.049 | 1,24 | 1.152 | 29,3 | | | | | | | | | |
| 20 | 0.035 | 0,89 | 1.180 | 30,0 | | | | | | | | | |
| 22 | 0.028 | 0,71 | 1.194 | 30,4 | | | | | | | | | |
| 1.3/8" (34,9) | 12 | 0.109 | 2,77 | 1.157 | 29,3 | 1.102 ÷ 1.260 | 28,0 ÷ 32,0 | R30.#-14-M | 14-15-C | 4-12÷14/A | 1/2" (12,7) | F90 + M4/L M4/V | Macrol 200 |
| | 14 | 0.083 | 2,11 | 1.209 | 30,7 | 1.142 ÷ 1.299 | 29,0 ÷ 33,0 | R30.#-14/A-M | 14/A-15/A-C | | | | |
| | 16 | 0.065 | 1,65 | 1.245 | 31,6 | 1.181 ÷ 1.338 | 30,0 ÷ 34,0 | R30.#-15-M | 14-15-C | 4-15÷16/A | 1/2" (12,7) | Matex | Macrol 450 |
| | 18 | 0.049 | 1,24 | 1.277 | 32,4 | 1.220 ÷ 1.378 | 31,0 ÷ 35,0 | R30.#-15/A-M | 14/A-15/A-C | | | | |
| | 20 | 0.035 | 0,89 | 1.305 | 33,1 | 1.260 ÷ 1.417 | 32,0 ÷ 36,0 | R30.#-16-M | 16-C | | | | |
| | 22 | 0.028 | 0,71 | 1.319 | 33,5 | | | | | | | | |
| 1.1/2" (38,1) | 8 | 0.165 | 4,19 | 1.170 | 29,7 | 1.142 ÷ 1.299 | 29,0 ÷ 33,0 | R30.#-14/A | 14/A-15/A-C | 4-12÷14/A | 1/2" (12,7) | F90 + M4/L M4/V | Macrol 200 |
| | 9 | 0.148 | 3,76 | 1.204 | 30,6 | 1.181 ÷ 1.338 | 30,0 ÷ 34,0 | R30.#-15 | 14-15-C | | | | |
| | 10 | 0.134 | 3,40 | 1.232 | 31,3 | 1.220 ÷ 1.378 | 31,0 ÷ 35,0 | R30.#-15/A | 14/A-15/A-C | | | | |
| | 11 | 0.120 | 3,05 | 1.260 | 32,0 | 1.260 ÷ 1.417 | 32,0 ÷ 36,0 | R30.#-16 | 16-C | 4-15÷16/A | 1/2" (12,7) | Matex | Macrol 450 |
| | 12 | 0.109 | 2,77 | 1.282 | 32,5 | | | | | | | | |
| | 13 | 0.095 | 2,41 | 1.310 | 33,3 | 1.319 ÷ 1.476 | 33,5 ÷ 37,5 | R30.#-16/A | 16/A-C | | | | |
| | 14 | 0.083 | 2,11 | 1.334 | 33,9 | | | | | | | | |
| | 15 | 0.072 | 1,83 | 1.356 | 34,4 | | | | | | | | |
| | 16 | 0.065 | 1,65 | 1.370 | 34,8 | | | | | | | | |
| | 17 | 0.058 | 1,47 | 1.384 | 35,1 | | | | | | | | |
| | 18 | 0.049 | 1,24 | 1.402 | 35,6 | | | | | | | | |
| | 20 | 0.035 | 0,89 | 1.430 | 36,3 | | | | | | | | |
| 22 | 0.028 | 0,71 | 1.444 | 36,7 | | | | | | | | | |

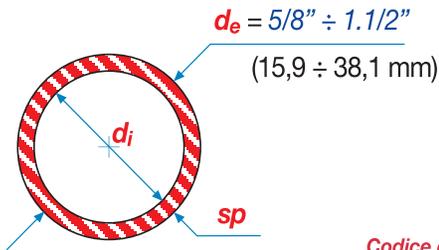
R/31

Per piastre tubiere di medio spessore

For medium thickness tube-sheets

Pour plaques tubulaires de moyenne épaisseur

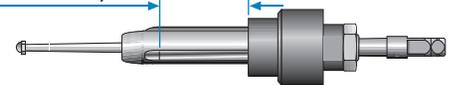
Für Rohrböden mit mittlerer Stärke



$RE_{min} = 1.1/8"$ (28,6 mm)



$RE_{max} = 2"$ (50,8 mm)



Codice d'esempio per ordinazione mandrini

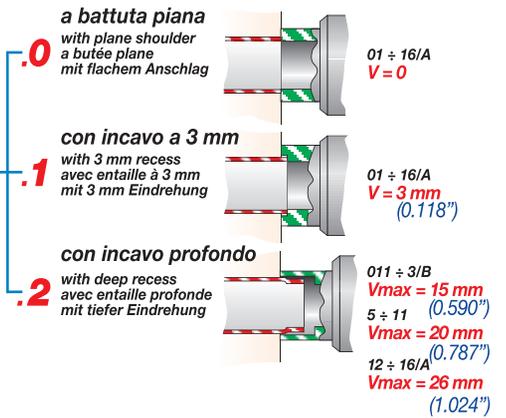
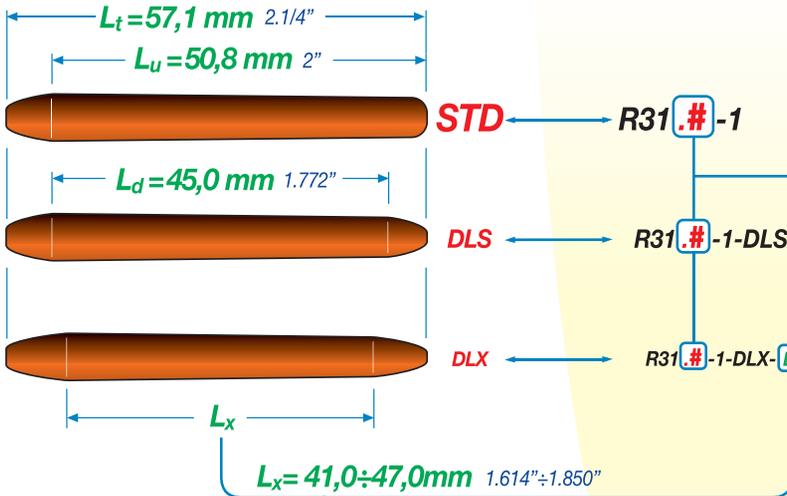
Sample code for ordering tube expanders
Code d'exemple pour commande dudgeons
Bestellnr. Bestellbeispiel Rohrwalze

Testa di battuta

Thrust collar
Tête de butée
Anschlagkopf



$d_e 3/4"$ - 13 B.W.G.



Tubo
Tube
Tube
Rohr

| d_e inches mm | sp | | d_i | | Espansione Expansion Expansion Walzbereich | | Mandrino Tube expander Dudgeon Rohrwalzen | Rulli Rolls Galets Rollen | Spina Mandrel Broche Dorn | Mandrinatrici consigliate Suggested rolling machines Dudgeonneuses conseillées Empfohlene Rohreinwalzanlagen | |
|-----------------------|--------|--------|-------|--------|---|---------------|--|------------------------------------|------------------------------------|---|--|
| | B.W.G. | inches | mm | inches | mm | inches | mm | Cod. | Cod. | | Cod. |
| 5/8" (15,9) | 14 | 0.083 | 2,11 | 0.459 | 11,7 | 0.437 ÷ 0.500 | 11,1 ÷ 12,7 | R31.#-01/A-M | 01/A-L | 4-01/A | F90 + MS/40 M4/V Macrol 750 |
| | 15 | 0.072 | 1,83 | 0.481 | 12,2 | 0.452 ÷ 0.523 | 11,5 ÷ 13,3 | R31.#-02-M | 02-L | 4-02 ÷ 02/A | |
| | 16 | 0.065 | 1,65 | 0.495 | 12,6 | 0.472 ÷ 0.543 | 12,0 ÷ 13,8 | R31.#-02/A-M | 02/A-L | | |
| | 17 | 0.058 | 1,47 | 0.509 | 12,9 | 0.492 ÷ 0.571 | 12,5 ÷ 14,5 | R31.#-03-M | 03-L | 4-03 ÷ 1 | Matex F90 + MP/1 M4/V MS/60 Matex Minirol 500 Macrol 1350 |
| | 18 | 0.049 | 1,24 | 0.527 | 13,4 | 0.512 ÷ 0.590 | 13,0 ÷ 15,0 | R31.#-04-M | 04-L | | |
| | 19 | 0.042 | 1,07 | 0.541 | 13,7 | 0.531 ÷ 0.610 | 13,5 ÷ 15,5 | R31.#-1-M | 1-1/A-L | | |
| | 20 | 0.035 | 0,89 | 0.555 | 14,1 | | | | | | |
| 22 | 0.028 | 0,71 | 0.569 | 14,5 | | | | | | | |



Rif. 5R/71
Ref. 5R/71
Ref. 5R/71
Siège 5R/71



Consigliate
Suggested
Conseillées
Empfehlung

Possibili
Possible
Possibles
Variationsmöglichkeiten

| de inches mm | Tubo Tube Tube Rohr | | | | Espansione Expansion Expansion Walzbereich | | Mandrino Tube expander Dudgeon Rohrwalzen | Rulli Rolls Galets Rollen | Spina Mandrel Broche Dorn | Mandrinatrici consigliate Suggested rolling machines Dudgeonneuses conseillées Empfohlene Rohreinwalzanlagen | | | |
|--------------------|------------------------------|--------|-------|--------|---|---------------|--|------------------------------------|------------------------------------|---|--------------------------------|--|--|
| | B.W.G. | sp | | dj | | inches | mm | Cod. | Cod. | Cod. | inches mm | Elektrische Electrical Electriques elektrisch | Pneumatiche Pneumatic Pneumatiques pneumatich |
| | | inches | mm | inches | mm | | | | | | | inches | mm |
| 3/4" (19,0) | 10 | 0.134 | 3,40 | 0.482 | 12,2 | 0.452 ÷ 0.523 | 11,5 ÷ 13,3 | R31.#-02 | 02-L | 4-02÷02/A | F90 + M4/V M4/L MS/30 | Macrol 450 | |
| | | | | 0.492 | 12,5 | 0.472 ÷ 0.543 | 12,0 ÷ 13,8 | R31.#-02/A | 02/A-L | | | | |
| | 11 | 0.120 | 3,05 | 0.510 | 12,9 | 0.492 ÷ 0.571 | 12,5 ÷ 14,5 | R31.#-03 | 03-L | | | | |
| | | | | | | | | | | 4-03÷1 | Matex | | |
| | 12 | 0.109 | 2,77 | 0.532 | 13,4 | 0.512 ÷ 0.590 | 13,0 ÷ 15,0 | R31.#-04 | 04-L | | | | |
| | | | | | | | | | | 4-1/A | F90 + M4/L MS/60 M4/V | Macrol 750 | |
| | 13 | 0.095 | 2,41 | 0.560 | 14,2 | 0.531 ÷ 0.610 | 13,5 ÷ 15,5 | R31.#-1 | 1-1/A-L | | | | |
| | | | | | | | | | | 2-L | | | |
| | 14 | 0.083 | 2,11 | 0.584 | 14,8 | 0.551 ÷ 0.639 | 14,0 ÷ 16,2 | R31.#-1/A | 1-1/A-L | | | | |
| | | | | | | | | | | 2/A-L | | | |
| | 15 | 0.072 | 1,83 | 0.606 | 15,3 | 0.570 ÷ 0.669 | 14,5 ÷ 17,0 | R31.#-2 | 2-L | | | | |
| | | | | | | | | | 3-L | | | | |
| 16 | 0.065 | 1,65 | 0.620 | 15,7 | 0.590 ÷ 0.689 | 15,0 ÷ 17,5 | R31.#-2/A | 2/A-L | | | | | |
| | | | | | | | | | 3/A-L | | | | |
| 17 | 0.058 | 1,47 | 0.634 | 16,0 | 0.610 ÷ 0.709 | 15,5 ÷ 18,0 | R31.#-3 | 3-L | | | | | |
| | | | | | | | | | 3/A-L | | | | |
| 18 | 0.049 | 1,24 | 0.652 | 16,5 | 0.630 ÷ 0.728 | 16,0 ÷ 18,5 | R31.#-3/A | 3/A-L | | | | | |
| | | | | | | | | | 3/B-L | | | | |
| 19 | 0.042 | 1,07 | 0.666 | 16,8 | | | | | | | | | |
| 20 | 0.035 | 0,89 | 0.680 | 17,2 | | | | | | | | | |
| 21 | 0.032 | 0,81 | 0.686 | 17,4 | 0.650 ÷ 0.748 | 16,5 ÷ 19,0 | R31.#-3/B | 3/B-L | | | | | |
| 22 | 0.028 | 0,71 | 0.694 | 17,6 | | | | | | | | | |
| 7/8" (22,2) | 10 | 0.134 | 3,40 | 0.607 | 15,4 | 0.570 ÷ 0.669 | 14,5 ÷ 17,0 | R31.#-2-M | 2-L | 4-2÷3/B | F90 + M4/V M4/L MS/30 | Macrol 450 | |
| | | | | 0.635 | 16,1 | 0.610 ÷ 0.709 | 15,5 ÷ 18,0 | R31.#-3-M | 3-L | | | | |
| | 11 | 0.120 | 3,05 | 0.635 | 16,1 | 0.610 ÷ 0.709 | 15,5 ÷ 18,0 | R31.#-3-M | 3-L | | | | |
| | | | | | | | | | | 3/A-L | Matex | | |
| | 12 | 0.109 | 2,77 | 0.657 | 16,6 | 0.630 ÷ 0.728 | 16,0 ÷ 18,5 | R31.#-3/A-M | 3/A-L | | | | |
| | | | | | | | | | | 3/B-L | F90 + M4/L MS/60 M4/V | Macrol 750 | |
| | 13 | 0.095 | 2,41 | 0.685 | 17,4 | 0.650 ÷ 0.748 | 16,5 ÷ 19,0 | R31.#-3/B-M | 3/B-L | | | | |
| | | | | | | | | | | 5-L | | | |
| | 14 | 0.083 | 2,11 | 0.709 | 18,0 | 0.681 ÷ 0.799 | 17,3 ÷ 20,3 | R31.#-5-M | 5-L | | | | |
| | | | | | | | | | | 5/A-L | | | |
| | 15 | 0.072 | 1,83 | 0.731 | 18,5 | 0.700 ÷ 0.812 | 17,8 ÷ 20,8 | R31.#-5/A-M | 5/A-L | | | | |
| | | | | | | | | | 6-7-L | | | | |
| 16 | 0.065 | 1,65 | 0.745 | 18,9 | | | | | | | | | |
| | | | | | | | | | 6-7-L | | | | |
| 17 | 0.058 | 1,47 | 0.759 | 19,2 | 0.720 ÷ 0.838 | 18,3 ÷ 21,3 | R31.#-6-M | 6-7-L | | | | | |
| | | | | | | | | | 6-7-L | | | | |
| 18 | 0.049 | 1,24 | 0.777 | 19,7 | | | | | | | | | |
| | | | | | | | | | 6-7-L | | | | |
| 19 | 0.042 | 1,07 | 0.791 | 20,0 | | | | | | | | | |
| 20 | 0.035 | 0,89 | 0.805 | 20,4 | | | | | | | | | |
| 21 | 0.032 | 0,81 | 0.811 | 20,6 | 0.748 ÷ 0.866 | 19,0 ÷ 22,0 | R31.#-7-M | 6-7-L | | | | | |
| 22 | 0.028 | 0,71 | 0.819 | 20,8 | | | | | | | | | |
| 1" (25,4) | 8 | 0.165 | 4,19 | 0.670 | 17,0 | 0.650 ÷ 0.748 | 16,5 ÷ 19,0 | R31.#-3/B-S | 3/B-L | 4-2÷3/B | F90 + M4/L M4/V | Macrol 200 | |
| | | | | 0.685 | 17,4 | | | | | | | | |
| | 9 | 0.148 | 3,76 | 0.704 | 17,9 | 0.681 ÷ 0.799 | 17,3 ÷ 20,3 | R31.#-5 | 5-L | | | | |
| | | | | | | | | | | 5/A-L | Matex | | |
| | 10 | 0.134 | 3,40 | 0.732 | 18,6 | 0.700 ÷ 0.812 | 17,8 ÷ 20,8 | R31.#-5/A | 5/A-L | | | | |
| | | | | | | | | | | 6-7-L | F90 + M4/L M4/V | Macrol 450 | |
| | 11 | 0.120 | 3,05 | 0.760 | 19,3 | 0.720 ÷ 0.838 | 18,3 ÷ 21,3 | R31.#-6 | 6-7-L | | | | |
| | | | | | | | | | | 6-7-L | | | |
| | 12 | 0.109 | 2,77 | 0.782 | 19,8 | 0.748 ÷ 0.866 | 19,0 ÷ 22,0 | R31.#-7 | 6-7-L | | | | |
| | | | | | | | | | | 7/A-L | | | |
| | 13 | 0.095 | 2,41 | 0.810 | 20,6 | 0.767 ÷ 0.886 | 19,5 ÷ 22,5 | R31.#-7/A | 7/A-L | | | | |
| | | | | | | | | | | 8-L | | | |
| | 14 | 0.083 | 2,11 | 0.834 | 21,2 | 0.787 ÷ 0.905 | 20,0 ÷ 23,0 | R31.#-8 | 8-L | | | | |
| | | | | | | | | | 8/A-L | | | | |
| 15 | 0.072 | 1,83 | 0.856 | 21,7 | | | | | | | | | |
| | | | | | | | | | 9-L | | | | |
| 16 | 0.065 | 1,65 | 0.870 | 22,1 | 0.827 ÷ 0.964 | 21,0 ÷ 24,5 | R31.#-9 | 9-L | | | | | |
| | | | | | | | | | 9/A-L | | | | |
| 17 | 0.058 | 1,47 | 0.884 | 22,4 | | | | | | | | | |
| | | | | | | | | | 9/A-L | | | | |
| 18 | 0.049 | 1,24 | 0.902 | 22,9 | 0.846 ÷ 0.984 | 21,5 ÷ 25,0 | R31.#-9/A | 9/A-L | | | | | |
| | | | | | | | | | 9/A-L | | | | |
| 19 | 0.042 | 1,07 | 0.916 | 23,2 | | | | | | | | | |
| | | | | | | | | | 10-L | | | | |
| 20 | 0.035 | 0,89 | 0.930 | 23,6 | | | | | | | | | |
| 21 | 0.032 | 0,81 | 0.936 | 23,8 | 0.866 ÷ 1.004 | 22,0 ÷ 25,5 | R31.#-10 | 10-L | | | | | |
| 22 | 0.028 | 0,71 | 0.944 | 24,0 | | | | | | | | | |

R/31

| de inches mm | Tubo Tube Tube Rohr | | | | Espansione Expansion Expansion Walzbereich | | Mandrino Tube expander Dudgeon Rohrwalzen | Rulli Rolls Galets Rollen | Spina Mandrel Broche Dorn | inches mm | Mandrinatrici consigliate Suggested rolling machines Dudgeonneuses conseillées Empfohlene Rohrenwalzanlagen | | | | |
|--------------------|------------------------------|--------|-------|--------|---|---------------|--|------------------------------------|------------------------------------|--------------|--|---|----------------------------|--|------------|
| | B.W.G. | sp | | di | | Cod. | Cod. | Cod. | inches mm | | Elektrische Electrical Electriques elektrisch | Pneumatiche Pneumatic Pneumatiques pneumatisch | | | |
| | | inches | mm | inches | mm | | | | | | inches | mm | | | |
| 1.1/8" (28,5) | 11 | 0.120 | 3,05 | 0.885 | 22,4 | 0.846 ÷ 0.984 | 21,5 ÷ 25,0 | R31.#-9/A-M | 9/A-L | 4-9÷11 | 3/8" (9,5) | F90 + M4/L M4/V | Macrol 200 | | |
| | 12 | 0.109 | 2,77 | 0.907 | 22,9 | 0.866 ÷ 1.004 | 22,0 ÷ 25,5 | R31.#-10-M | 10-L | | R31.#-11-M | 11-L | Matex | | |
| | 13 | 0.095 | 2,41 | 0.935 | 23,7 | 0.905 ÷ 1.043 | 23,0 ÷ 26,5 | | | | | | | | |
| | 14 | 0.083 | 2,11 | 0.959 | 24,3 | 0.945 ÷ 1.102 | 24,0 ÷ 28,0 | R31.#-12-M | 12-L | 4-12÷14/A | 1/2" (12,7) | F90 + M4/V MS/40 M4/L | Macrol 450 | | |
| | 16 | 0.065 | 1,65 | 0.995 | 25,2 | 0.984 ÷ 1.142 | 25,0 ÷ 29,0 | R31.#-12/A-M | 12/A-L | | | | Matex | | |
| | 18 | 0.049 | 1,24 | 1.027 | 26,0 | | | | | | | | | | |
| | 20 | 0.035 | 0,89 | 1.055 | 26,7 | | | | | | | | | | |
| 22 | 0.028 | 0,71 | 1.069 | 27,1 | | | | | | | | | | | |
| 1.1/4" (31,8) | 9 | 0.148 | 3,76 | 0.954 | 24,3 | 0.905 ÷ 1.043 | 23,0 ÷ 26,5 | R31.#-11 | 11-L | 4-9÷11 | 3/8" (9,5) | | Macrol 130 | | |
| | 10 | 0.134 | 3,40 | 0.982 | 25,0 | 0.945 ÷ 1.102 | 24,0 ÷ 28,0 | R31.#-12 | 12-L | | 4-12÷14/A | 1/2" (12,7) | F90 + M4/L M4/V | | |
| | 11 | 0.120 | 3,05 | 1.010 | 25,7 | 0.984 ÷ 1.142 | 25,0 ÷ 29,0 | R31.#-12/A | 12/A-L | | | | | | Macrol 200 |
| | 12 | 0.109 | 2,77 | 1.032 | 26,2 | 1.027 ÷ 1.181 | 26,0 ÷ 30,0 | R31.#-13 | 13-L | | | | | | |
| | 13 | 0.095 | 2,41 | 1.060 | 27,0 | 1.063 ÷ 1.220 | 27,0 ÷ 31,0 | R31.#-13/A | 13/A-L | | | | | | |
| | 14 | 0.083 | 2,11 | 1.084 | 27,6 | 1.102 ÷ 1.260 | 28,0 ÷ 32,0 | R31.#-14 | 14-15-L | | | | | | |
| | 16 | 0.065 | 1,65 | 1.120 | 28,5 | | | | | | | | | | |
| | 17 | 0.058 | 1,47 | 1.134 | 28,8 | | | | | | | | | | |
| 1.3/8" (34,9) | 12 | 0.109 | 2,77 | 1.157 | 29,3 | 1.102 ÷ 1.260 | 28,0 ÷ 32,0 | R31.#-14-M | 14-15-L | 4-12÷14/A | 1/2" (12,7) | F90 + M4/L M4/V | Macrol 130 | | |
| | 14 | 0.083 | 2,11 | 1.209 | 30,7 | 1.142 ÷ 1.299 | 29,0 ÷ 33,0 | R31.#-14/A-M | 14/A-15/A-L | | | | | | |
| | 16 | 0.065 | 1,65 | 1.245 | 31,6 | 1.181 ÷ 1.338 | 30,0 ÷ 34,0 | R31.#-15-M | 14-15-L | 4-15÷16/A | | | Macrol 200 | | |
| | 18 | 0.049 | 1,24 | 1.277 | 32,4 | 1.220 ÷ 1.378 | 31,0 ÷ 35,0 | R31.#-15/A-M | 14/A-15/A-L | | | | | | |
| | 20 | 0.035 | 0,89 | 1.305 | 33,1 | 1.260 ÷ 1.417 | 32,0 ÷ 36,0 | R31.#-16-M | 16-L | | | | | | |
| 22 | 0.028 | 0,71 | 1.319 | 33,5 | | | | | | | | | | | |
| 1.1/2" (38,1) | 8 | 0.165 | 4,19 | 1.170 | 29,7 | 1.142 ÷ 1.299 | 29,0 ÷ 33,0 | R31.#-14/A | 14/A-15/A-L | 4-12÷14/A | 1/2" (12,7) | F90 + M4/L MG/49 | Macrol 130 Masterol 180 | | |
| | 9 | 0.148 | 3,76 | 1.204 | 30,6 | 1.181 ÷ 1.338 | 30,0 ÷ 34,0 | R31.#-15 | 14-15-L | | | | | | |
| | 10 | 0.134 | 3,40 | 1.232 | 31,3 | 1.220 ÷ 1.378 | 31,0 ÷ 35,0 | R31.#-15/A | 14/A-15/A-L | | | | | | |
| | 11 | 0.120 | 3,05 | 1.260 | 32,0 | 1.260 ÷ 1.417 | 32,0 ÷ 36,0 | R31.#-16 | 16-L | 4-15÷16/A | | | | | |
| | 12 | 0.109 | 2,77 | 1.282 | 32,5 | | | | | | | | | | |
| | 13 | 0.095 | 2,41 | 1.310 | 33,3 | | | | | | | | | | |
| | 14 | 0.083 | 2,11 | 1.334 | 33,9 | | | | | | | | | | |
| | 15 | 0.072 | 1,83 | 1.356 | 34,4 | 1.319 ÷ 1.476 | 33,5 ÷ 37,5 | R31.#-16/A | 16/A-L | | | | | | |
| | 16 | 0.065 | 1,65 | 1.370 | 34,8 | | | | | | | | | | |
| | 17 | 0.058 | 1,47 | 1.384 | 35,1 | | | | | | | | | | |
| 18 | 0.049 | 1,24 | 1.402 | 35,6 | | | | | | | | | | | |
| 20 | 0.035 | 0,89 | 1.430 | 36,3 | | | | | | | | | | | |
| 22 | 0.028 | 0,71 | 1.444 | 36,7 | | | | | | | | | | | |