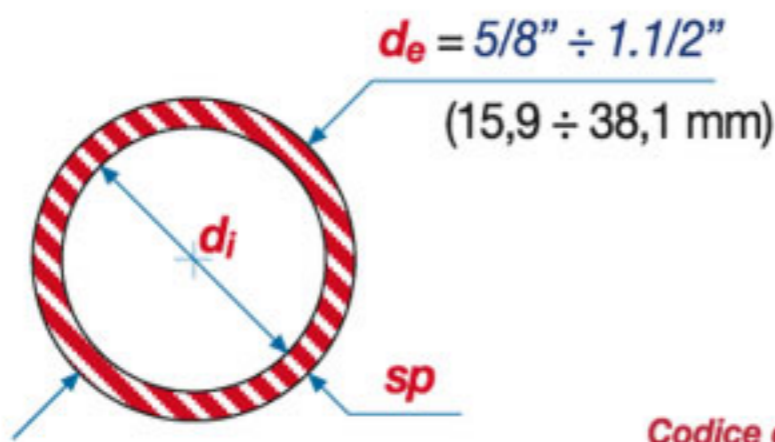


Per piastre tubiere di medio spessore

For medium thickness tube-sheets

Pour plaques tubulaires de moyenne épaisseur

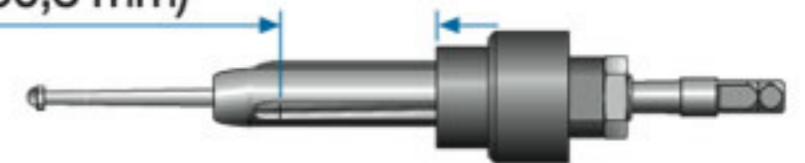
Für Rohrböden mit mittlerer Stärke



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



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



Codice d'esempio per ordinazione mandrini

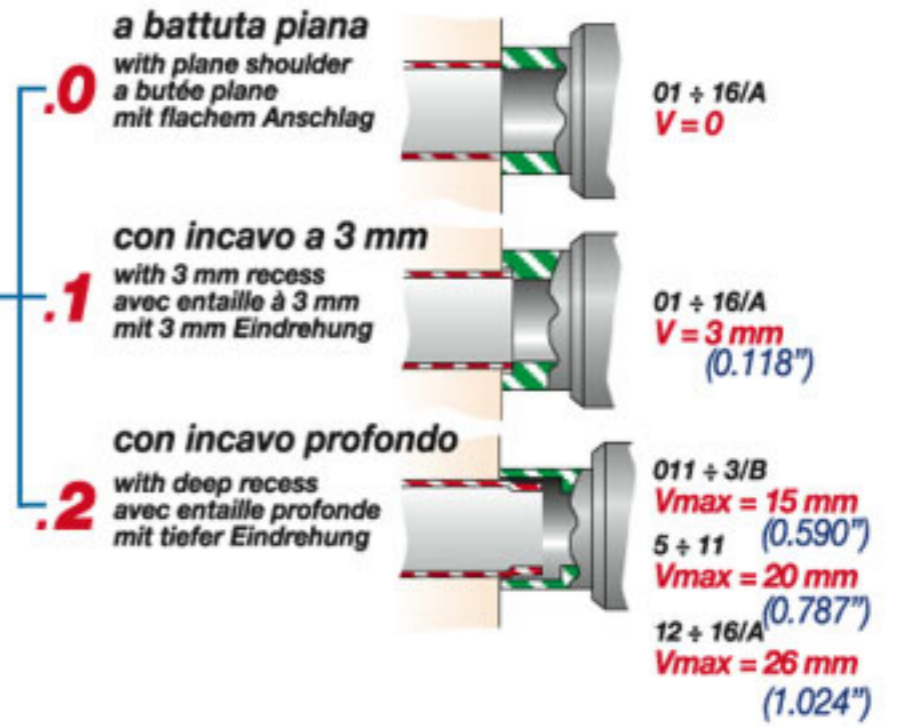
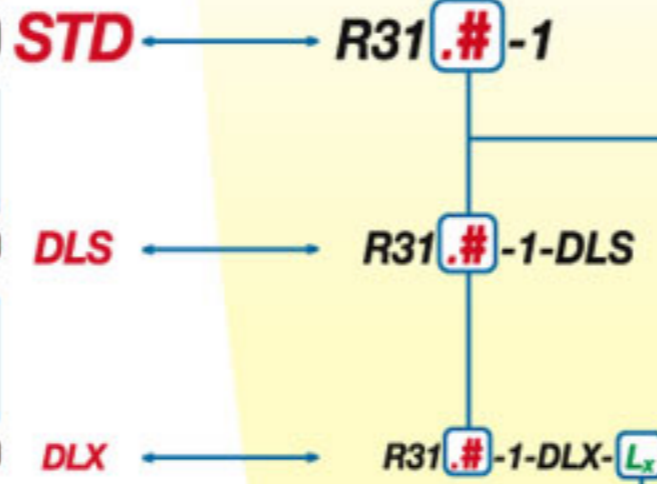
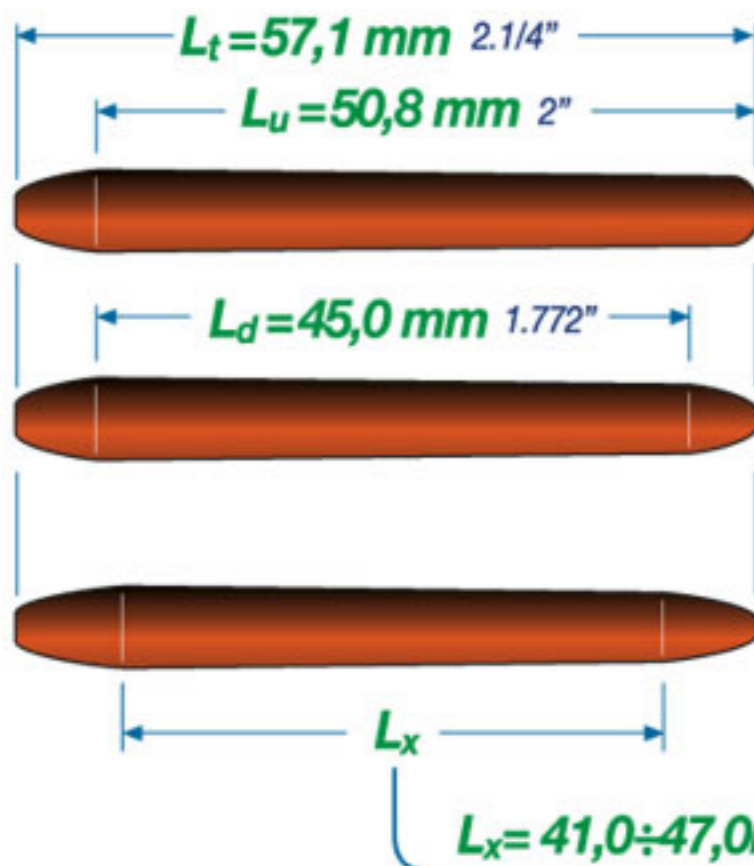
Sample code for ordering tube expanders
Code d'exemple pour commande dudgeons
Bestellnr. Bestellbeispiel Rohrwalze

Testa di battuta

Thrust collar
Tête de butée
Anschlagkopf



$d_e 3/4" - 13 \text{ B.W.G.}$



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 Rohrwalzanlagen	
d_e	sp	d_i					Cod.	Cod.	Cod.	inches mm	Elektrische Electrical Electriques elektrisch	Pneumatiche Pneumatic Pneumatiques pneumatisch
inches mm	B.W.G. inches mm	inches mm	inches mm	inches mm	inches mm	inches mm						
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	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	MS/40 M4/V	
	16	0.065	1,65	0.495	12,6	0.472 ÷ 0.543	12,0 ÷ 13,8	R31.#-02/A-M	02/A-L		Matex	
	17	0.058	1,47	0.509	12,9	0.492 ÷ 0.571	12,5 ÷ 14,5	R31.#-03-M	03-L			
	18	0.049	1,24	0.527	13,4	0.512 ÷ 0.590	13,0 ÷ 15,0	R31.#-04-M	04-L	4-03 ÷ 1	F90	Minirol 500 Macrol 1350
	19	0.042	1,07	0.541	13,7						0.531 ÷ 0.610	
	20	0.035	0,89	0.555	14,1						Matex	
	22	0.028	0,71	0.569	14,5							



Rif. 5R/71
Ref. 5R/71
Réf. 5R/71
Siehe 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 Cod.	Rulli Rolls Galets Rollen Cod.	Spina Mandrel Broche Dorn Cod.	Mandrinatrici consigliate Suggested rolling machines Dudgeonneuses conseillées Empfohlene Rohreinwalzanlagen				
	B.W.G.	sp		di		inches				mm	inches	mm	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	3/8" (9,5)	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		F90 + M4/L MS/60 M4/V	Macrol 750	
				0.532	13,4	0.512 ÷ 0.590	13,0 ÷ 15,0	R31.#-04	04-L					
	12	0.109	2,77	0.560	14,2	0.531 ÷ 0.610	13,5 ÷ 15,5	R31.#-1	1-1/A-L	4-1/A		Matex	F90 + M4/L MS/60 M4/V	Macrol 750
				0.584	14,8	0.551 ÷ 0.639	14,0 ÷ 16,2	R31.#-1/A	1-1/A-L					
	13	0.095	2,41	0.606	15,3	0.570 ÷ 0.669	14,5 ÷ 17,0	R31.#-2	2-L	4-2÷3/B		Matex	F90 + M4/L MS/60 M4/V	Macrol 750
				0.620	15,7	0.590 ÷ 0.689	15,0 ÷ 17,5	R31.#-2/A	2/A-L					
	14	0.083	2,11	0.634	16,0	0.610 ÷ 0.709	15,5 ÷ 18,0	R31.#-3	3-L	4-7÷8/A		Matex	F90 + M4/L MS/60 M4/V	Macrol 750
				0.652	16,5	0.630 ÷ 0.728	16,0 ÷ 18,5	R31.#-3/A	3/A-L					
15	0.072	1,83	0.680	17,2	0.650 ÷ 0.748	16,5 ÷ 19,0	R31.#-3/B	3/B-L	4-7÷8/A	Matex	F90 + M4/L MS/60 M4/V	Macrol 750		
			0.686	17,4	0.650 ÷ 0.748	16,5 ÷ 19,0	R31.#-3/B	3/B-L						
16	0.065	1,65	0.694	17,6					4-7÷8/A	Matex	F90 + M4/L MS/60 M4/V	Macrol 750		
			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	3/8" (9,5)	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	0.657	16,6	0.630 ÷ 0.728	16,0 ÷ 18,5	R31.#-3/A-M	3/A-L	4-5÷6		F90 + M4/L MS/60 M4/V	Macrol 750	
				0.669	17,0	0.650 ÷ 0.748	16,5 ÷ 19,0	R31.#-3/B-M	3/B-L					
	12	0.109	2,77	0.685	17,4	0.681 ÷ 0.799	17,3 ÷ 20,3	R31.#-5-M	5-L	4-7÷8/A		Matex	F90 + M4/L MS/60 M4/V	Macrol 750
				0.685	17,4	0.700 ÷ 0.812	17,8 ÷ 20,8	R31.#-5/A-M	5/A-L					
	13	0.095	2,41	0.709	18,0	0.720 ÷ 0.838	18,3 ÷ 21,3	R31.#-6-M	6-7-L	4-7÷8/A		Matex	F90 + M4/L MS/60 M4/V	Macrol 750
				0.709	18,0	0.720 ÷ 0.838	18,3 ÷ 21,3	R31.#-6-M	6-7-L					
	14	0.083	2,11	0.731	18,5					4-7÷8/A		Matex	F90 + M4/L MS/60 M4/V	Macrol 750
				0.731	18,5									
15	0.072	1,83	0.745	18,9	0.748 ÷ 0.866	19,0 ÷ 22,0	R31.#-7-M	6-7-L	4-7÷8/A	Matex	F90 + M4/L MS/60 M4/V	Macrol 750		
			0.745	18,9	0.748 ÷ 0.866	19,0 ÷ 22,0	R31.#-7-M	6-7-L						
16	0.065	1,65	0.805	20,4					4-7÷8/A	Matex	F90 + M4/L MS/60 M4/V	Macrol 750		
			0.805	20,4										
17	0.058	1,47	0.811	20,6					4-7÷8/A	Matex	F90 + M4/L MS/60 M4/V	Macrol 750		
			0.811	20,6										
18	0.049	1,24	0.819	20,8					4-7÷8/A	Matex	F90 + M4/L MS/60 M4/V	Macrol 750		
			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	3/8" (9,5)	F90 + M4/L M4/V	Macrol 200	
				0.685	17,4	0.681 ÷ 0.799	17,3 ÷ 20,3	R31.#-5	5-L					
	9	0.148	3,76	0.704	17,9	0.700 ÷ 0.812	17,8 ÷ 20,8	R31.#-5/A	5/A-L	4-5÷6		F90 + M4/L M4/V	Macrol 200	
				0.704	17,9	0.720 ÷ 0.838	18,3 ÷ 21,3	R31.#-6	6-7-L					
	10	0.134	3,40	0.732	18,6	0.748 ÷ 0.866	19,0 ÷ 22,0	R31.#-7	6-7-L	4-7÷8/A		Matex	F90 + M4/L M4/V	Macrol 200
				0.732	18,6	0.767 ÷ 0.886	19,5 ÷ 22,5	R31.#-7/A	7/A-L					
	11	0.120	3,05	0.760	19,3	0.787 ÷ 0.905	20,0 ÷ 23,0	R31.#-8	8-L	4-7÷8/A		Matex	F90 + M4/L M4/V	Macrol 200
				0.760	19,3	0.807 ÷ 0.925	20,5 ÷ 23,5	R31.#-8/A	8/A-L					
	12	0.109	2,77	0.782	19,8					4-7÷8/A		Matex	F90 + M4/L M4/V	Macrol 200
				0.782	19,8									
13	0.095	2,41	0.791	20,1	0.827 ÷ 0.964	21,0 ÷ 24,5	R31.#-9	9-L	4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.791	20,1	0.846 ÷ 0.984	21,5 ÷ 25,0	R31.#-9/A	9/A-L						
14	0.083	2,11	0.810	20,6					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.810	20,6										
15	0.083	2,11	0.834	21,2					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.834	21,2										
16	0.072	1,83	0.856	21,7					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.856	21,7										
17	0.065	1,65	0.870	22,1					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.870	22,1										
18	0.058	1,47	0.884	22,4					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.884	22,4										
19	0.049	1,24	0.902	22,9					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.902	22,9										
20	0.042	1,07	0.916	23,2					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.916	23,2										
21	0.035	0,89	0.930	23,6					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.930	23,6										
22	0.032	0,81	0.936	23,8	0.866 ÷ 1.004	22,0 ÷ 25,5	R31.#-10	10-L	4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			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					4-9÷11	Matex	F90 + M4/V M4/L MS/40	Macrol 450		
			0.944	24,0										

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 Rohreinwalzanlagen						
	B.W.G.	sp		dj		inches	mm	Cod.	Cod.		Cod.	Elektriche Electrical Electriques elektrisch	Pneumatiche Pneumatic Pneumatiques pneumatisch				
		inches	mm	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								
	13	0.095	2,41	0.935	23,7	0.905 ÷ 1.043	23,0 ÷ 26,5	R31.#-11-M	11-L								
	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	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	
	18	0.049	1,24	1.027	26,0	1.063 ÷ 1.220	27,0 ÷ 31,0	R31.#-13/A	13/A-L	4-12÷14/A	1/2" (12,7)	F90 + M4/L M4/V	Macrol 130				
	20	0.035	0,89	1.055	26,7							1.027 ÷ 1.181		26,0 ÷ 30,0	R31.#-13	13-L	
22	0.028	0,71	1.069	27,1	1.063 ÷ 1.220							27,0 ÷ 31,0		R31.#-13/A	13/A-L		
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)	F90 + M4/L M4/V	Macrol 130				
	10	0.134	3,40	0.982	25,0	0.945 ÷ 1.102	24,0 ÷ 28,0	R31.#-12	12-L								
	11	0.120	3,05	1.010	25,7	0.984 ÷ 1.142	25,0 ÷ 29,0	R31.#-12/A	12/A-L								
	12	0.109	2,77	1.032	26,2	1.027 ÷ 1.181	26,0 ÷ 30,0	R31.#-13	13-L	4-12÷14/A	1/2" (12,7)	F90 + M4/L M4/V	Macrol 200				
	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	4-12÷14/A	1/2" (12,7)	F90 + M4/L M4/V	Macrol 130				
	16	0.065	1,65	1.120	28,5									1.102 ÷ 1.260	28,0 ÷ 32,0	R31.#-14	14-15-L
17	0.058	1,47	1.134	28,8	1.142 ÷ 1.299									29,0 ÷ 33,0	R31.#-14/A	14/A-15/A-L	
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	1/2" (12,7)	F90 + M4/L M4/V	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	1.142 ÷ 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					
1.1/2" (38,1)	8	0.165	4,19	1.170									29,7	1.181 ÷ 1.338	30,0 ÷ 34,0	R31.#-15	14-15-L
	9	0.148	3,76	1.204									30,6	1.220 ÷ 1.378	31,0 ÷ 35,0	R31.#-15/A	14/A-15/A-L
	10	0.134	3,40	1.232	31,3	1.260 ÷ 1.417	32,0 ÷ 36,0	R31.#-16	16-L	4-15÷16/A	1/2" (12,7)	F90 + M4/L M4/V	Macrol 200				
	11	0.120	3,05	1.260	32,0									1.260 ÷ 1.417	32,0 ÷ 36,0	R31.#-16	16-L
	12	0.109	2,77	1.282	32,5	1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L								
	13	0.095	2,41	1.310	33,3					1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L				
	14	0.083	2,11	1.334	33,9					1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L				
	15	0.072	1,83	1.356	34,4	1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L	4-15÷16/A	1/2" (12,7)	F90 + M4/L M4/V	Macrol 200				
	16	0.065	1,65	1.370	34,8									1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L
	17	0.058	1,47	1.384	35,1									1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L
18	0.049	1,24	1.402	35,6	1.319 ÷ 1.476									33,5 ÷ 37,5	R31.#-16/A	16/A-L	
20	0.035	0,89	1.430	36,3	1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L	4-15÷16/A	1/2" (12,7)	F90 + M4/L M4/V	Macrol 200					
22	0.028	0,71	1.444	36,7									1.319 ÷ 1.476	33,5 ÷ 37,5	R31.#-16/A	16/A-L	