

BOILER TUBE EXPANDER



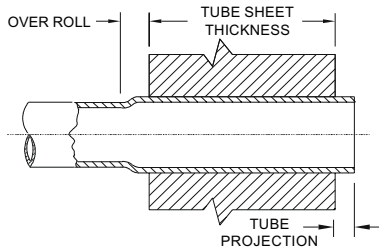
'BAB' SERIES

3 PLAIN ROLLER TUBE EXPANDER WITH THRUST BEARING

FEATURES:

- Its similar to BA series tube expander
- Bearing reduces frictional build up for smoother expanding cycles.
- Bearing increases useful life of tool.
- Use: This tool is most useful for high productivity where flaring of tubes is not needed.

Tube O. D.
7/8" - 4.1/2"



TUBE SIZE			TUBE SIZE			MIN. I.D. TUBE TOOL ENTERS		MAX. EXPANSION OF TOOLS		TUBE EXPANDER MODEL NUMBER				
O.D. inch	THK. GA.	THK. inch	O.D. inch	THK. GA.	THK. inch	Mm	Inch	Mm	Inch	TUBE SHEET THICKNESS RANGE				
										1/2" TO 7/8"	3/4" TO 1. 1/8"	1. 1/8" TO 1. 5/8"	1. 5/8" TO 2. 1/8"	2. 1/8" TO 2. 5/8"
Tube Sheet Thickness Codes >>>										2	3	4	5	6
7/8	15	(.072)	1	10	(.134)	18.1	(.712)	20.4	(.803)	BAB-31/2	BAB-31/3	-	-	-
7/8	16	(.065)				18.4	(.724)	20.7	(.814)	BAB-32/2	BAB-32/3	-	-	-
7/8	17	(.058)	1	11	(.120)	18.8	(.740)	21.1	(.830)	BAB-33/2	BAB-33/3	-	-	-
7/8	18	(.049)	1	12	(.109)	19.4	(.763)	21.6	(.850)	BAB-34/2	BAB-34/3	-	-	-
7/8	19 & 20	(.042 &.035)	1. 1/8	8	(.165)	19.7	(.775)	22.3	(.877)	BAB-35/2	BAB-35/3	-	-	-
1	13	(.095)				20.1	(.791)	22.4	(.881)	BAB-36/2	BAB-36/3	-	-	-
1	14	(.083)	1. 1/8	9	(.148)	20.6	(.811)	23.1	(.909)	BAB-37/2	BAB-37/3	BAB-37/4	-	-
1	15 & 16	(.072 &.065)	1. 1/8	10	(.134)	21.3	(.838)	23.8	(.937)	BAB-38/2	BAB-38/3	BAB-38/4	-	-
1	17 & 18	(.058 &.048)	1. 1/8	11	(.120)	22.0	(.866)	24.5	(.964)	BAB-39/2	BAB-39/3	BAB-39/4	-	-
1	19 & 20	(.042 &.035)	1. 1/8	12	(.109)	22.4	(.881)	25.0	(.984)	BAB-40/2	BAB-40/3	BAB-40/4	-	-
1. 1/4	8	(.165)	1. 1/8	13	(.095)	23.3	(.917)	25.9	(1.019)	BAB-41/2	BAB-41/3	BAB-41/4	-	-
1. 1/4	9	(.148)	1. 1/8	14	(.083)	23.8	(.937)	26.5	(1.043)	BAB-42/2	BAB-42/3	BAB-42/4	-	-
1. 1/4	10	(.134)	1. 1/8	15 & 16	(.072 &.065)	24.4	(.960)	27.2	(1.070)	BAB-43/2	BAB-43/3	BAB-43/4	-	-
1. 1/4	11	(.120)				25.2	(.992)	28.0	(1.102)	BAB-44/2	BAB-44/3	BAB-44/4	-	-
1. 1/4	12	(.109)				25.7	(1.011)	28.5	(1.122)	BAB-45/2	BAB-45/3	BAB-45/4	-	-
1. 1/4	13	(.095)	1. 3/8	8	(.165)	26.1	(1.027)	28.8	(1.133)	BAB-46/2	BAB-46/3	BAB-46/4	-	-
1. 1/4	14	(.083)				26.4	(1.039)	29.2	(1.149)	BAB-47/2	BAB-47/3	BAB-47/4	-	-
1. 1/4	15	(.072)	1. 3/8	9	(.148)	26.9	(1.059)	29.7	(1.169)	BAB-48/2	BAB-48/3	BAB-48/4	-	-
1. 1/4	16	(.065)	1. 3/8	10	(.134)	27.6	(1.086)	30.4	(1.196)	BAB-49/2	BAB-49/3	BAB-49/4	BAB-49/5	BAB-49/6
1. 1/2	7	(.180)	1. 3/8	11	(.120)	28.3	(1.114)	31.2	(1.228)	BAB-50/2	BAB-50/3	BAB-50/4	BAB-50/5	BAB-50/6
1. 1/2	8	(.165)	1. 3/8	12	(.109)	28.8	(1.133)	31.7	(1.248)	BAB-51/2	BAB-51/3	BAB-51/4	BAB-51/5	BAB-51/6
1. 1/2	9	(.148)	1. 3/8	13 & 14	(.095 &.083)	29.5	(1.161)	33.4	(1.314)	BAB-52/2	BAB-52/3	BAB-52/4	BAB-52/5	BAB-52/6
1. 1/2	10	(.134)	1. 3/8	15 & 16	(.072 &.065)	30.0	(1.181)	34.1	(1.342)	BAB-53/2	BAB-53/3	BAB-53/4	BAB-53/5	BAB-53/6
1. 1/2	11 & 12	(.120 &.109)				30.6	(1.204)	34.8	(1.370)	BAB-54/2	BAB-54/3	BAB-54/4	BAB-54/5	BAB-54/6
1. 1/2	13	(.095)	1. 3/4	5	(.220)	31.4	(1.236)	35.6	(1.401)	BAB-55/2	BAB-55/3	BAB-55/4	BAB-55/5	BAB-55/6
1. 1/2	14 & 15	(.083 &.072)	1. 3/4	6	(.203)	32.6	(1.283)	36.8	(1.448)	BAB-56/2	BAB-56/3	BAB-56/4	BAB-56/5	BAB-56/6
			1. 3/4	7	(.180)	33.4	(1.314)	38.1	(1.500)	BAB-57/2	BAB-57/3	BAB-57/4	BAB-57/5	BAB-57/6
			1. 3/4	8	(.165)	34.2	(1.346)	38.7	(1.523)	BAB-58/2	BAB-58/3	BAB-58/4	BAB-58/5	BAB-58/6
2	3	(.259)	1. 3/4	9 & 10	(.148 &.134)	35.0	(1.377)	40.6	(1.598)	BAB-59/2	BAB-59/3	BAB-59/4	BAB-59/5	BAB-59/6
2	4	(.238)	1. 3/4	11 & 12	(.120 &.109)	36.6	(1.440)	42.2	(1.661)	BAB-60/2	BAB-60/3	BAB-60/4	BAB-60/5	BAB-60/6
2	5 & 6	(.220 &.203)	1. 3/4	13 & 14	(.095 &.083)	38.2	(1.503)	43.8	(1.712)	BAB-61/2	BAB-61/3	BAB-61/4	BAB-61/5	BAB-61/6
2	7 & 8	(.180 &.165)	1. 3/4	15 & 16	(.072 &.065)	39.8	(1.566)	45.4	(1.787)	BAB-62/2	BAB-62/3	BAB-62/4	BAB-62/5	BAB-62/6
2	9 & 10	(.148 &.134)	2. 1/4	3	(.259)	41.4	(1.629)	47.0	(1.850)	BAB-63/2	BAB-63/3	BAB-63/4	BAB-63/5	BAB-63/6
2	11 - 13	(.120 -.095)	2. 1/4	4	(.238)	42.9	(1.688)	49.5	(1.948)	BAB-64/2	BAB-64/3	BAB-64/4	BAB-64/5	BAB-64/6
2	14 - 16	(.083 -.065)	2. 1/4	6 & 7	(.203 &.180)	44.5	(1.751)	51.1	(2.011)	BAB-65/2	BAB-65/3	BAB-65/4	BAB-65/5	BAB-65/6
2	17 & 18	(.058 &.049)	2. 1/4	8 & 9	(.165 &.148)	46.1	(1.814)	52.7	(2.074)	BAB-66/2	BAB-66/3	BAB-66/4	BAB-66/5	BAB-66/6

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Tube O. D.
7/8" - 4.1/2"



SPARE ROLLERS SET MODEL NUMBER					SPARE MANDREL MODEL NUMBER	
TUBE SHEET THICKNESS RANGE					MANDREL SIZE inch	DRUM TYPE
1/2" TO 7/8"	3/4" TO 1. 1/8"	1. 1/8" TO 1. 5/8"	1. 5/8" TO 2. 1/8"	2. 1/8" TO 2. 5/8"		
2	3	4	5	6	<<< Tube Sheet Thickness Codes	
15-2-RS	15-3-RS	-	-	-	3/8	DMB-11
15-2-RS	15-3-RS	-	-	-	3/8	DMB-12
16-2-RS	16-3-RS	-	-	-	3/8	DMB-12
20-2-RS	20-3-RS	-	-	-	3/8	DMB-12
17-2-RS	17-3-RS	-	-	-	3/8	DMB-13
18-2-RS	18-3-RS	-	-	-	3/8	DMB-12
18-2-RS	18-3-RS	18-4-RS	-	-	3/8	DMB-13
19-2-RS	19-3-RS	19-4-RS	-	-	3/8	DMB-13
21-2-RS	21-3-RS	21-4-RS	-	-	3/8	DMB-13
21-2-RS	21-3-RS	21-4-RS	-	-	3/8	DMB-14
22-2-RS	22-3-RS	22-4-RS	-	-	3/8	DMB-14
23-2-RS	23-3-RS	23-4-RS	-	-	1/2	DMB-15
24-2-RS	24-3-RS	24-4-RS	-	-	1/2	DMB-15
26-2-RS	26-3-RS	26-4-RS	-	-	1/2	DMB-16
27-2-RS	27-3-RS	27-4-RS	-	-	1/2	DMB-16
31-2-RS	31-3-RS	31-4-RS	-	-	1/2	DMB-16
28-2-RS	28-3-RS	28-4-RS	-	-	1/2	DMB-17
29-2-RS	29-3-RS	29-4-RS	-	-	1/2	DMB-17
30-2-RS	30-3-RS	30-4-RS	30-5-RS	30-6-RS	1/2	DMB-17
30-2-RS	30-3-RS	30-4-RS	30-5-RS	30-6-RS	1/2	DMB-18
32-2-RS	32-3-RS	32-4-RS	32-5-RS	32-6-RS	1/2	DMB-18
28-2-RS	28-3-RS	28-4-RS	28-5-RS	28-6-RS	1/2	DMB-20
29-2-RS	29-3-RS	29-4-RS	29-5-RS	29-6-RS	1/2	DMB-20
30-2-RS	30-3-RS	30-4-RS	30-5-RS	30-6-RS	1/2	DMB-20
33-2-RS	33-3-RS	33-4-RS	33-5-RS	33-6-RS	1/2	DMB-20
34-2-RS	34-3-RS	34-4-RS	34-5-RS	34-6-RS	1/2	DMB-21
36-2-RS	36-3-RS	36-4-RS	36-5-RS	36-6-RS	1/2	DMB-21
37-2-RS	37-3-RS	37-4-RS	37-5-RS	37-6-RS	1/2	DMB-21
33-2-RS	33-3-RS	33-4-RS	33-5-RS	33-6-RS	3/4	DMB-22
37-2-RS	37-3-RS	37-4-RS	37-5-RS	37-6-RS	3/4	DMB-22
38-2-RS	38-3-RS	38-4-RS	38-5-RS	38-6-RS	3/4	DMB-22
39-2-RS	39-3-RS	39-4-RS	39-5-RS	39-6-RS	3/4	DMB-22
40-2-RS	40-3-RS	40-4-RS	40-5-RS	40-6-RS	3/4	DMB-22
40-2-RS	40-3-RS	40-4-RS	40-5-RS	40-6-RS	3/4	DMB-23
41-2-RS	41-3-RS	41-4-RS	41-5-RS	41-6-RS	3/4	DMB-23
42-2-RS	42-3-RS	42-4-RS	42-5-RS	42-6-RS	3/4	DMB-23

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Tube O. D.
7/8" - 4.1/2"



TUBE SIZE			TUBE SIZE			MIN. I.D. TUBE TOOL ENTERS		MAX. EXPANSION OF TOOLS		TUBE EXPANDER MODEL NUMBER				
O.D. inch	THK. GA.	THK. inch	O.D. inch	THK. GA.	THK. inch	Mm	Inch	Mm	Inch	TUBE SHEET THICKNESS RANGE				
										1/2" TO 7/8"	3/4" TO 1. 1/8"	1. 1/8" TO 1. 5/8"	1. 5/8" TO 2. 1/8"	2. 1/8" TO 2. 5/8"
Tube Sheet Thickness Codes >>>										2	3	4	5	6
2. 1/2	3	(.259)	2. 1/4	10 & 11	(.134 & .120)	47.7	(1.877)	54.3	(2.137)	BAB-67/2	BAB-67/3	BAB-67/4	BAB-67/5	BAB-67/6
2. 1/2	4 & 5	(.238 & .220)	2. 1/4	12 & 13	(.109 & .095)	49.3	(1.940)	55.9	(2.200)	BAB-68/2	BAB-68/3	BAB-68/4	BAB-68/5	BAB-68/6
2. 1/2	6 & 7	(.203 & .180)	2. 1/4	14 - 16	(.083 - .065)	50.8	(2.000)	57.8	(2.275)	BAB-69/2	BAB-69/3	BAB-69/4	BAB-69/5	BAB-69/6
2. 1/2	8 & 9	(.165 & .148)	2. 3/4	3	(.259)	52.4	(2.062)	59.4	(2.338)	BAB-70/2	BAB-70/3	BAB-70/4	BAB-70/5	BAB-70/6
2. 1/2	10 & 11	(.134 & .120)	2. 3/4	4	(.238)	54.0	(2.125)	61.0	(2.401)	BAB-71/2	BAB-71/3	BAB-71/4	BAB-71/5	BAB-71/6
2. 1/2	12 - 14	(.109 - .083)	2. 3/4	5 & 6	(.220 & .203)	55.6	(2.188)	64.0	(2.519)	BAB-72/2	BAB-72/3	BAB-72/4	BAB-72/5	BAB-72/6
2. 1/2	15 & 16	(.072 & .065)	2. 3/4	7 & 8	(.180 & .165)	57.2	(2.251)	65.6	(2.582)	BAB-73/2	BAB-73/3	BAB-73/4	BAB-73/5	BAB-73/6
3	3	(.259)	2. 3/4	9 & 10	(.148 & .134)	58.6	(2.307)	67.0	(2.637)	BAB-74/2	BAB-74/3	BAB-74/4	BAB-74/5	BAB-74/6
3	4	(.238)	2. 3/4	11 - 13	(.120 - .095)	60.4	(2.377)	68.8	(2.708)	BAB-75/2	BAB-75/3	BAB-75/4	BAB-75/5	BAB-75/6
3	5 & 6	(.220 & .203)	2. 3/4	14 - 16	(.083 - .065)	62.2	(2.448)	70.4	(2.771)	BAB-76/2	BAB-76/3	BAB-76/4	BAB-76/5	BAB-76/6
3	7 & 8	(.180 & .165)	3. 1/4	3	(.259)	63.6	(2.503)	72.0	(2.834)	BAB-77/2	BAB-77/3	BAB-77/4	BAB-77/5	BAB-77/6
3	9 & 10	(.148 & .134)	3. 1/4	4	(.238)	65.0	(2.559)	73.4	(2.889)	BAB-78/2	BAB-78/3	BAB-78/4	BAB-78/5	BAB-78/6
3	11 - 13	(.120 - .095)	3. 1/4	5 & 6	(.220 & .203)	66.6	(2.622)	75.0	(2.952)	BAB-79/2	BAB-79/3	BAB-79/4	BAB-79/5	BAB-79/6
3	14 - 16	(.083 - .065)	3. 1/4	7 & 8	(.180 & .165)	68.3	(2.688)	76.9	(3.027)	BAB-80/2	BAB-80/3	BAB-80/4	BAB-80/5	BAB-80/6
3. 1/2	2	(.284)	3. 1/4	9 & 10	(.148 & .134)	69.9	(2.751)	78.5	(3.090)	BAB-81/2	BAB-81/3	BAB-81/4	BAB-81/5	BAB-81/6
3. 1/2	3	(.259)	3. 1/4	11 - 13	(.120 - .095)	71.5	(2.814)	80.1	(3.153)	BAB-82/2	BAB-82/3	BAB-82/4	BAB-82/5	BAB-82/6
3. 1/2	4	(.238)	3. 1/4	14 - 16	(.083 - .065)	73.1	(2.877)	81.7	(3.216)	BAB-83/2	BAB-83/3	BAB-83/4	BAB-83/5	BAB-83/6
3. 1/2	5 & 6	(.220 & .203)	3. 1/4	2	(.084)	74.6	(2.937)	84.2	(3.314)	BAB-84/2	BAB-84/3	BAB-84/4	BAB-84/5	BAB-84/6
3. 1/2	7 & 8	(.180 & .165)	3. 3/4	3	(.259)	76.2	(3.000)	85.5	(3.366)	BAB-85/2	BAB-85/3	BAB-85/4	BAB-85/5	BAB-85/6
3. 1/2	9 - 11	(.148 - .120)	3. 3/4	4	(.238)	77.8	(3.062)	87.4	(3.440)	BAB-86/2	BAB-86/3	BAB-86/4	BAB-86/5	BAB-86/6
3. 1/2	12 - 16	(.109 - .065)	3. 3/4	5 & 6	(.220 & .203)	79.4	(3.125)	89.0	(3.503)	BAB-87/2	BAB-87/3	BAB-87/4	BAB-87/5	BAB-87/6
4	2	(.284)	3. 3/4	7 & 8	(.180 & .165)	81.0	(3.188)	90.6	(3.566)	BAB-88/2	BAB-88/3	BAB-88/4	BAB-88/5	BAB-88/6
4	3	(.259)	3. 3/4	9 & 10	(.148 & .134)	82.6	(3.251)	92.2	(3.629)	BAB-89/2	BAB-89/3	BAB-89/4	BAB-89/5	BAB-89/6
4	4	(.238)	3. 3/4	11 - 13	(.120 - .095)	84.2	(3.314)	93.8	(3.692)	BAB-90/2	BAB-90/3	BAB-90/4	BAB-90/5	BAB-90/6
4	5 & 6	(.220 & .203)	4. 1/4	2	(.083 - .065)	85.8	(3.377)	96.2	(3.787)	BAB-91/2	BAB-91/3	BAB-91/4	BAB-91/5	BAB-91/6
4	7 & 8	(.180 & .165)	4. 1/4	14 - 16	(.083 - .065)	87.4	(3.440)	97.8	(3.850)	BAB-92/2	BAB-92/3	BAB-92/4	BAB-92/5	BAB-92/6
4	9 - 11	(.148 - .120)	4. 1/4	3	(.284)	89.0	(3.503)	99.4	(3.913)	BAB-93/2	BAB-93/3	BAB-93/4	BAB-93/5	BAB-93/6
4	12 - 16	(.109 - .065)	4. 1/4	4	(.238)	90.4	(3.559)	100.8	(3.968)	BAB-94/2	BAB-94/3	BAB-94/4	BAB-94/5	BAB-94/6
4	5 & 6	(.220 & .203)	4. 1/4	5 & 6	(.220 & .203)	92.0	(3.622)	102.4	(4.031)	BAB-95/2	BAB-95/3	BAB-95/4	BAB-95/5	BAB-95/6
4	7 & 8	(.180 & .165)	4. 1/4	7 & 8	(.180 & .165)	93.4	(3.677)	103.8	(4.086)	BAB-96/2	BAB-96/3	BAB-96/4	BAB-96/5	BAB-96/6
4. 1/2	2	(.284)	4. 1/4	9 & 10	(.148 & .134)	95.0	(3.740)	105.4	(4.149)	BAB-97/2	BAB-97/3	BAB-97/4	BAB-97/5	BAB-97/6
4. 1/2	3	(.259)	4. 1/4	11 - 13	(.120 - .095)	96.6	(3.803)	107.0	(4.212)	BAB-98/2	BAB-98/3	BAB-98/4	BAB-98/5	BAB-98/6
4. 1/2	4 & 5	(.238 & .220)	4. 1/4	3	(.284)	98.2	(3.866)	108.6	(4.275)	BAB-99/2	BAB-99/3	BAB-99/4	BAB-99/5	BAB-99/6
4. 1/2	6 & 7	(.203 & .180)				101.2	(3.984)	110.0	(4.330)	BAB-100/2	BAB-100/3	BAB-100/4	BAB-100/5	BAB-100/6
4. 1/2	8 & 9	(.165 & .148)				102.8	(4.047)	111.6	(4.393)	BAB-101/2	BAB-101/3	BAB-101/4	BAB-101/5	BAB-101/6
4. 1/2	10 - 12	(.134 - .109)				104.4	(4.110)	113.2	(4.456)	BAB-102/2	BAB-102/3	BAB-102/4	BAB-102/5	BAB-102/6

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Tube O. D.
7/8" - 4.1/2"



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TUBE SHEET THICKNESS RANGE					MANDREL SIZE inch	DRUM TYPE
1/2" TO 7/8"	3/4" TO 1. 1/8"	1. 1/8" TO 1. 5/8"	1. 5/8" TO 2. 1/8"	2. 1/8" TO 2. 5/8"		
2	3	4	5	6	<<< Tube Sheet Thickness Codes	
43-2-RS 44-2-RS 43-2-RS	43-3-RS 44-3-RS 43-3-RS	43-4-RS 44-4-RS 43-4-RS	43-5-RS 44-5-RS 43-5-RS	43-6-RS 44-6-RS 43-6-RS	3/4 3/4 3/4	DMB-23 DMB-23 DMB-24
44-2-RS 45-2-RS 47-2-RS	44-3-RS 45-3-RS 47-3-RS	44-4-RS 45-4-RS 47-4-RS	44-5-RS 45-5-RS 47-5-RS	44-6-RS 45-6-RS 47-6-RS	3/4 3/4 3/4	DMB-24 DMB-24 DMB-24
46-2-RS 47-2-RS 48-2-RS	46-3-RS 47-3-RS 48-3-RS	46-4-RS 47-4-RS 48-4-RS	46-5-RS 47-5-RS 48-5-RS	46-6-RS 47-6-RS 48-6-RS	1 1 1	DMB-25 DMB-25 DMB-25
49-2-RS 50-2-RS 51-2-RS	49-3-RS 50-3-RS 51-3-RS	49-4-RS 50-4-RS 51-4-RS	49-5-RS 50-5-RS 51-5-RS	49-6-RS 50-6-RS 51-6-RS	1 1 1	DMB-25 DMB-25 DMB-25
52-2-RS 51-2-RS 52-2-RS	52-3-RS 51-3-RS 52-3-RS	52-4-RS 51-4-RS 52-4-RS	52-5-RS 51-5-RS 52-5-RS	52-6-RS 51-6-RS 52-6-RS	1 1 1	DMB-25 DMB-26 DMB-26
53-2-RS 54-2-RS 54-2-RS	53-3-RS 54-3-RS 54-3-RS	53-4-RS 54-4-RS 54-4-RS	53-5-RS 54-5-RS 54-5-RS	53-6-RS 54-6-RS 54-6-RS	1 1 1	DMB-26 DMB-26 DMB-27
55-2-RS 56-2-RS 57-2-RS	55-3-RS 56-3-RS 57-3-RS	55-4-RS 56-4-RS 57-4-RS	55-5-RS 56-5-RS 57-5-RS	55-6-RS 56-6-RS 57-6-RS	1 1 1	DMB-27 DMB-27 DMB-27
58-2-RS 59-2-RS 60-2-RS	58-3-RS 59-3-RS 60-3-RS	58-4-RS 59-4-RS 60-4-RS	58-5-RS 59-5-RS 60-5-RS	58-6-RS 59-6-RS 60-6-RS	1 1 1	DMB-27 DMB-27 DMB-27
59-2-RS 60-2-RS 61-2-RS	59-3-RS 60-3-RS 61-3-RS	59-4-RS 60-4-RS 61-4-RS	59-5-RS 60-5-RS 61-5-RS	59-6-RS 60-6-RS 61-6-RS	1 1 1	DMB-28 DMB-28 DMB-28
62-2-RS 63-2-RS 62-2-RS	62-3-RS 63-3-RS 62-3-RS	62-4-RS 63-4-RS 62-4-RS	62-5-RS 63-5-RS 62-5-RS	62-6-RS 63-6-RS 62-6-RS	1 1 1	DMB-28 DMB-28 DMB-29
63-2-RS 64-2-RS 63-2-RS	63-3-RS 64-3-RS 63-3-RS	63-4-RS 64-4-RS 63-4-RS	63-5-RS 64-5-RS 63-5-RS	63-6-RS 64-6-RS 63-6-RS	1 1 1	DMB-29 DMB-29 DMB-30
64-2-RS 65-2-RS 66-2-RS	64-3-RS 65-3-RS 66-3-RS	64-4-RS 65-4-RS 66-4-RS	64-5-RS 65-5-RS 66-5-RS	64-6-RS 65-6-RS 66-6-RS	1 1 1	DMB-30 DMB-30 DMB-30