

Short Series Mandrel Expansion Ranges

Expander*	Expansion Range		MS & MPS	Expansion Range		MS & MPS	Expansion Range		MS & MPS	Expansion Range		MS & MPS	Expansion Range		MS & MPS	Expansion Range		MS & MPS	Expansion Range	
	Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max		Min	Max
B - X111	1.102	1.299	#1	1.102	1.183	#2	1.124	1.234	#3	1.189	1.299									
	28.0	33.0		28.0	30.0		28.5	31.3		30.2	33.0									
B - X118	1.181	1.378	#1	1.181	1.262	#2	1.203	1.313	#3	1.268	1.378									
	30.0	35.0		30.0	32.1		30.6	33.4		32.2	35.0									
B - X126	1.260	1.496	#2	1.260	1.366	#3	1.342	1.431	#4	1.407	1.496									
	32.0	38.0		32.0	34.7		34.1	36.3		35.7	38.0									
B - X134	1.339	1.575	#3	1.339	1.432	#4	1.407	1.497	#5	1.485	1.575									
	34.0	40.0		34.0	36.4		35.7	38.0		37.7	40.0									
B - X142	1.417	1.673	#3	1.417	1.489	#4	1.486	1.554	#5	1.564	1.632	#6	1.605	1.673						
	36.0	42.5		36.0	37.8		37.7	39.5		39.7	41.5		40.8	42.5						
B - X150	1.496	1.752	#3	1.496	1.568	#4	1.565	1.633	#5	1.643	1.711	#6	1.684	1.752						
	38.0	44.5		38.0	39.8		39.7	41.5		41.7	43.5		42.8	44.5						
B - X158	1.575	1.850	#4	1.575	1.613	#5	1.622	1.691	#6	1.663	1.732	#7	1.722	1.791	#8	1.781	1.850			
	40.0	47.0		40.0	41.0		41.2	43.0		42.3	44.0		43.7	45.5		45.2	47.0			
B - X166	1.654	1.929	#4	1.654	1.692	#5	1.701	1.770	#6	1.742	1.811	#7	1.801	1.807	#8	1.860	1.929			
	42.0	49.0		42.0	43.0		43.2	45.0		44.3	46.0		45.8	47.5		47.3	49.0			
B - X174	1.732	2.027	#4	1.732	1.790	#5	1.799	1.868	#6	1.840	1.909	#7	1.899	1.968	#8	1.958	2.027			
	44.0	51.5		44.0	45.5		45.7	47.4		46.7	48.5		48.2	50.0		49.7	51.5			
B - X181	1.811	2.126	#7	1.811	1.889	#8	1.880	1.948	#9	1.938	2.006	#10	1.993	2.061	#11	2.017	2.126			
	46.0	54.0		46.0	48.0		47.7	49.5		49.2	51.0		50.6	52.3		51.2	54.0			
B - X189	1.890	2.205	#7	1.890	1.968	#8	1.958	2.027	#9	2.016	2.085	#10	2.071	2.140	#11	2.095	2.205			
	48.0	56.0		48.0	50.0		49.7	51.5		51.2	53.0		52.6	54.4		53.2	56.0			
B - X197	1.969	2.362	#6	1.969	2.066	#7	2.057	2.125	#8	2.116	2.184	#9	2.174	2.242	#10	2.229	2.297	#11	2.253	2.362
	50.0	60.0		50.0	52.5		52.2	54.0		53.7	55.5		55.2	56.9		56.6	58.3		57.2	60.0
B - X205	2.047	2.441	#7	2.047	2.126	#8	2.116	2.185	#9	2.174	2.243	#10	2.229	2.298	#11	2.253	2.363	#12	2.331	2.441
	52.0	62.0		52.0	54.0		53.7	55.5		55.2	57.0		56.6	58.4		57.2	60.0		59.2	62.0
B - X213	2.126	2.520	#7	2.126	2.205	#8	2.197	2.264	#9	2.255	2.322	#10	2.310	2.377	#11	2.334	2.442	#12	2.412	2.520
	54.0	64.0		54.0	56.0		55.8	57.5		57.3	59.0		58.7	60.4		59.3	62.0		61.3	64.0
B - X221	2.205	2.598	#7	2.205	2.283	#8	2.274	2.342	#9	2.332	2.400	#10	2.387	2.455	#11	2.411	2.520	#12	2.489	2.598
	56.0	66.0		56.0	58.0		57.8	59.5		59.2	61.0		60.6	62.4		61.2	64.0		63.2	66.0
B - X229	2.283	2.677	#8	2.283	2.342	#9	2.331	2.400	#10	2.386	2.455	#11	2.410	2.520	#12	2.488	2.598	#13	2.567	2.677
	58.0	68.0		58.0	59.5		59.2	61.0		60.6	62.4		61.2	64.0		63.2	66.0		65.2	68.0
B - X237	2.362	2.756	#8	2.362	2.421	#9	2.410	2.479	#10	2.465	2.534	#11	2.489	2.599	#12	2.567	2.677	#13	2.646	2.756
	60.0	70.0		60.0	61.5		61.2	63.0		62.6	64.4		63.2	66.0		65.2	68.0		67.2	70.0
B - X244	2.441	2.835	#8	2.441	2.500	#9	2.489	2.558	#10	2.544	2.61	#11	2.568	2.678	#12	2.646	2.756	#13	2.725	2.835
	62.0	72.0		62.0	63.5		63.2	65.0		64.6	66.4		65.2	68.0		67.2	70.0		69.2	72.0
B - X252	2.520	2.913	#10	2.520	2.612	#11	2.568	2.667	#12	2.646	2.755	#13	2.725	2.834	#14	2.804	2.913			
	64.0	74.0		64.0	66.3		65.2	68.0		67.2	70.0		69.2	72.0		71.2	74.0			
B - X260	2.598	2.992	#10	2.598	2.691	#11	2.647	2.756	#12	2.725	2.834	#13	2.804	2.913	#14	2.883	2.992			
	66.0	76.0		66.0	68.4		67.2	70.0		69.2	72.0		71.2	74.0		73.2	76.0			
B - X268	2.667	3.071	#10	2.667	2.770	#11	2.725	2.835	#12	2.803	2.913	#13	2.882	2.992	#14	2.961	3.071			
	68.0	78.0		68.0	70.4		69.2	72.0		71.2	74.0		73.2	76.0		75.2	78.0			
B - X276	2.756	3.150	#12	2.756	2.887	#13	2.857	2.966	#14	2.936	3.045	#15	2.988	3.097	#16	3.041	3.150			
	70.0	80.0		70.0	73.3		72.6	75.3		74.6	77.3		75.9	78.7		77.2	80.0			
B - X284	2.835	3.228	#12	2.835	2.965	#13	2.935	3.044	#14	3.014	3.123	#15	3.066	3.175	#16	3.119	3.228			
	72.0	82.0		72.0	75.3		74.5	77.3		76.5	79.3		77.9	80.6		79.2	82.0			
B - X292	2.913	3.307	#12	2.913	3.044	#13	3.014	3.123	#14	3.093	3.202	#15	3.15	3.25	#16	3.198	3.307			
	74.0	84.0		74.0	77.3		76.5	79.3		78.6	81.3		79.9	82.7		81.2	84.0			
B - X300	2.992	3.386	#12	2.992	3.123	#13	3.094	3.202	#14	3.173	3.281	#15	3.225	3.333	#16	3.278	3.386			
	76.0	86.0		76.0	79.3		78.6	81.3		80.6	83.3		81.9	84.7		83.3	86.0			
B - X308	3.071	3.465	#15	3.071	3.177	#16	3.119	3.230	#17	3.151	3.304	#18	3.231	3.384	#19	3.312	3.465			
	78.0	88.0		78.0	80.7		79.2	82.0		80.0	83.9		82.1	86.0		84.1	88.0			
B - X315	3.150	3.622	#14	3.150	3.282	#15	3.225	3.334	#16	3.278	3.387	#17	3.310	3.461	#18	3.390	3.541	#19	3.471	3.622
	80.0	92.0		80.0	83.4		81.9	84.7		83.3	86.0		84.1	87.9		86.1	89.9		88.2	92.0
B - X323	3.228	3.701	#14	3.228	3.361	#15	3.304	3.413	#16	3.357	3.466	#17	3.389	3.540	#18	3.469	3.620	#19	3.55	3.701
	82.0	94.0		82.0	85.4		83.9	86.7		85.3	88.0		86.1	89.9		88.1	91.9		90.2	94.0
B - X331	3.307	3.780	#14	3.307	3.440	#15	3.383	3.492	#16	3.436	3.545	#17	3.468	3.619	#18	3.548	3.699	#19	3.629	3.78
	84.0	96.0		84.0	87.4		85.9	88.7		87.3	90.0		88.1	91.9		90.1	94.0		92.2	96.0
B - X339	3.386	3.858	#14	3.386	3.518	#15	3.461	3.570	#16	3.514	3.623	#17	3.546	3.697	#18	3.626	3.777	#19	3.707	3.858
	86.0	98.0		86.0	89.4		87.9	90.7		89.2	92.0		90.1	93.9		92.1	95.9		94.1	98.0
B - X347	3.465	3.937	#14	3.465	3.597	#15	3.539	3.649	#16	3.592	3.702	#17	3.624	3.776	#18	3.704	3.856	#19	3.785	3.937
	88.0	100.0		88.0	91.4		89.9	92.7		91.2	94.0		92.0	95.9		94.1	97.9		96.1	100.0
B - X355	3.543	4.016	#17	3.543	3.696	#18	3.626	3.776	#19	3.707	3.857	#20	3.786	3.936	#21	3.866	4.016			
	90.0	102.0		90.0	93.9		92.1	95.9												