

Airetool®

Product Catalog



Condenser & Boiler Expanders

Rolling Controls

Pipe & Tube Cleaners

Installation & Removal Tools



Equipment Group International



The Airetool® family of tube service tools is one of the most diverse in the heat transfer industry with a broad selection of tube expanders, tube rolling controls, tube cleaners, and re-tubing tools to cover various applications.

Airetool®

Tools that perform

Improving production rates and decreasing cost are critical to the success of today's manufacturer or contractor. The Airetool line of tools are designed and manufactured to perform consistently time after time. When it comes to performance and reliability, there is no doubt as to why manufacturers and contractors around the world have come to rely on the Airetool brand of products.

Tools of the highest quality

When we say our tools are built well, we really mean it. Equipment Group International has brought back the exacting quality that Airetool brand is known for. While manufacturing in the USA to the highest standard.

Tools that work with the operator

It is simple... give an operator a tool that is comfortable to use and the operator will work better. Airetool tool balancing systems do just that, coupled with extending expander or associated tooling life.





Linsen Flaring Expander

O.D. Range: 1/4" – 2-5/8" (6.3 – 66.7 mm)

These special expanders are designed for making tubing connections without fittings. Using a drill press, lathe, or other power-driven tool, the Linsen expander enlarges the end of the tube leaving a .015" clearance for slip-fit and soldering of another tube of the same size. Can be used on copper, brass, aluminum, and thin steel tubing. Always specify tube gauge when ordering.

- Expanders with 2-1/4" (57.1 mm) long rolls will accommodate tube sheet thicknesses of 1/2" to 4" (12.7 mm to 101.6 mm).
- Eliminates extra fittings which saves on installation costs.

Expander*	Order Number	Tube O.D.		Cup Length		Shank Diameter (Round)	
		in.	mm	in.	mm	in.	mm
AL 250	5518385	1/4	6.3	0.437	11.1	0.250	6.35
AL 312	5146300	5/16	7.9	0.625	15.87	0.250	6.35
AL 375	5146400	3/8	9.5	0.625	15.87	0.250	6.35
AL 500	5146600	1/2	12.7	0.625	15.87	0.312	7.92
AL 625	5146800	5/8	15.8	0.750	19.05	0.312	7.92
AL 750	5146900	3/4	19.0	0.750	19.05	0.375	9.52
AL 875	5147000	7/8	22.2	0.750	19.05	0.375	9.52
AL 1000	5146000	1	25.4	1.000	25.40	0.500	12.70
AL 1125	5147100	1-1/8	28.5	1.000	25.40	0.500	12.70
AL 1250	5147200	1-1/4	31.7	1.000	25.40	0.500	12.70
AL 1375	5147300	1-3/8	34.9	1.000	25.40	0.500	12.70
AL 1500	5146100	1-1/2	38.1	1.000	25.40	0.625	15.87
AL 1625	5147400	1-5/8	41.2	1.000	25.40	0.625	15.87
AL 2000	5146200	2	50.8	1.000	25.40	0.625	15.87
AL 2125	5512247	2-1/8	53.9	1.000	25.40	0.625	15.87
AL 2625	5524547	2-5/8	66.6	1.000	25.40	.562 (Hex)	14.27 (Hex)

* Other sizes may be available. Contact customer service for details.



SR Expander*

The "SR" Short Reach Expanders incorporate a rapid taper on the mandrel that allows full expansion of a tube with minimum travel of the mandrel. The mandrel is retained at the rear of the expander to shorten the mandrel length which allows use near sharp tube bends. These expanders are made to order so application details must be provided ahead of time.

- Compact expander allows operation in confined areas.
- Short mandrel length used in "bent tube" applications.



Sugar Mill Evaporator Expanders*

Fixed roll length special expanders which are either power or hand-driven. Expanders are built precisely to order. Please provide detailed job parameters when inquiring these products.

- Designed for the repair and construction of juice tube evaporators.
- Five Roll design to overcome spring back effect of thin wall tubing ensuring tight joints the first time.
- Extended version of this expander allows for all tube rolling activities to occur from the top of the unit.



"PST" Pipe Sizing Expander*

The "PST" Expanders are designed to true pipe ends and enlarge the pipe end diameter in two easy steps, providing the correct clearance between the pipe O.D. and the I.D. of a fitting before making a silver solder or brazed welded joint.

- Portable expanders suitable for field work using hand tools or ratchet wrenches.
- Accurate expansion of pipe end using quality hardened parts for greater durability.
- Threaded mandrel allows fine adjustment for accurate sizing of the pipe end.



Collins Expander*

O.D. Range: 1/2" – 4-1/2" (12.7 – 113.8 mm)

Collins self-feeding tube expanders are tough, durable, and powerful. These nonparallel rolling, self-feeding expanders are suitable for close quarter tube installation and repair work.

- Compact design works well in thin tube sheet applications.
- No setup or adjustments make it quick and easy to use.
- Self-contained rolls that won't fall out.

* Please contact your EGI, Ltd sales representative for further information on these products.

Vernon Hydraulic Tube Expansion

Parallel Pin Tube Expansion

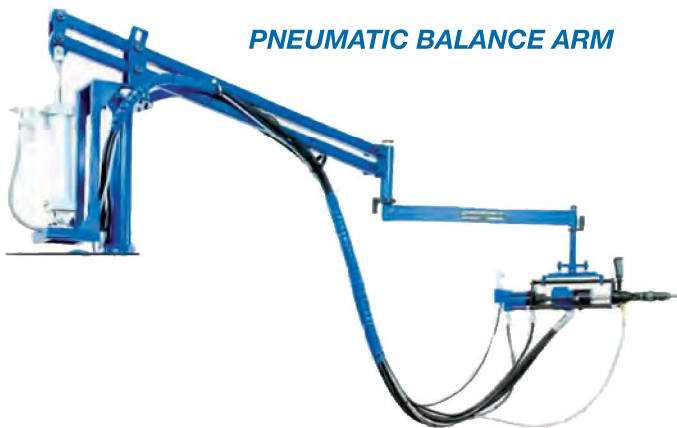


The **Vernon Tube Expanding System** uses a PLC to control all operations. A force transducer transmits pressure for roll torque, and signals cycle completion to retract the mandrel. Consistent RPM throughout the expanding cycle increases production, and the hydraulic system eliminates the need to reverse the expander mandrel. Parallel Pin expanders minimize axial flow of tube material, resulting in a better expanded joint. The Parallel Pin expander is specified by some companies to be used when tube to tube sheet welds are required. This can help reduce the stress on the weld.

The **Vernon Tube Expanding System** is an electrically 5 hp driven hydraulic unit that includes electric motor, two hydraulic pumps, hydraulic controls, and electrical controls in a powder coated cabinet on casters.



PNEUMATIC BALANCE ARM





PRECISION POWERHEAD

A single switch starts the cycle and resets for the next cycle. A pause switch allows the operator to stop the cycle at any point and release to continue the cycle. The pneumatic balance arm makes it easy to position the powerhead precisely, ensuring optimal production and quality.



ELECTRICAL CONTROL PANEL

- “E STOP” Button
- “MOTOR START” Button
- “LUBE ON” Button
- “ADVANCE CYCLE” indicator
- “CYCLE COMPLETE” indicator



HYDRAULIC CONTROL PANEL

- Roll torque
- Mandrel advance rate
- Mandrel advance force



DURABLE TOOLING

- Parallel Pin expanders
- Inventory for 1/2” to 2”
- Longer reach expanders available



ELECTRONIC PAPERLESS RECORDER

- Sets torque roll pressure
- Records pressure & time at completion (At completion of cycle)
- Easy to program

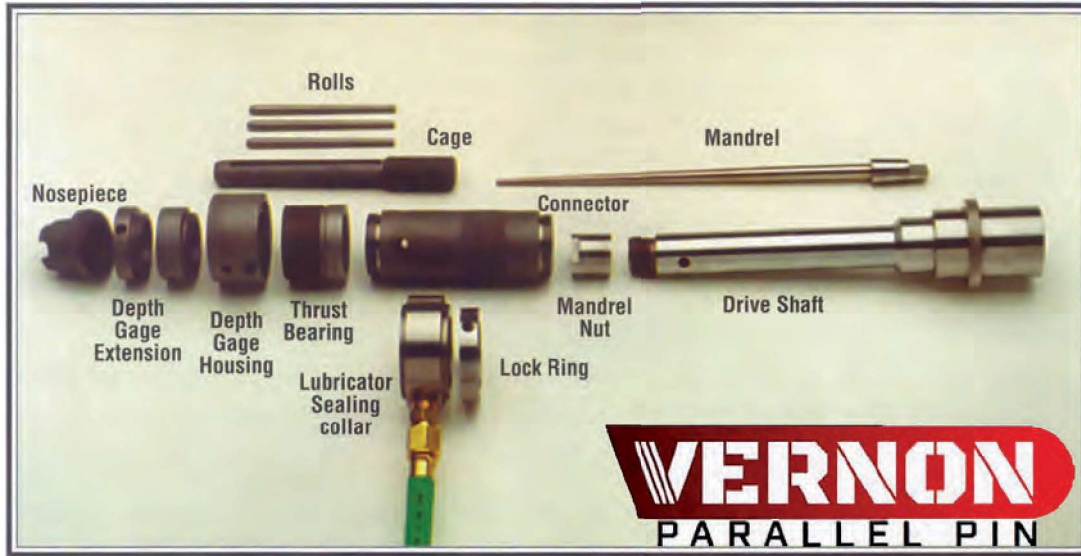


Vernon Hydraulic Tube Expansion

Type "A" Vernon Tooling

VERNON "A" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 1-1/4"



TUBE TOOLING SELECTION GUIDE DEPTH GAGE

O.D.	BWG	I.D. (AVG.) WALL	EFF. ROLL LENGTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece
1/2"	17	0.384	2-3/16"	5-11A	0.374	0.424	1/2A	3A	L5	E5	4NPA
	18	0.402		4-18A	0.387	0.450	0A				
	19	0.416		4-18A	0.387	0.450	0A				
5/8"	11	0.385	2-3/16"	5-11A	0.374	0.424	1/2A	3A	L5	E5	5NPA
	12	0.407		4-18A	0.387	0.450	0A				
	13	0.435	2-7/8"	5-13A	0.422	0.502	1A	5A			
	14	0.459		5-14A	0.452	0.515	2A				
	15	0.481		5-15A	0.462	0.525	3A				
	16	0.495		5-16A	0.472	0.537	4A				
	17	0.509		5-17A	0.488	0.551	5A				
	18	0.527		5-18A	0.512	0.575	6A				
	19	0.541		5-18A	0.512	0.575	6A				
	20	0.555	3-3/8"	6-13A	0.534	0.611	9A	6A	L6		
21	0.561		6-13A	0.534	0.611	9A					
22	0.567		6-13A	0.534	0.611	9A					
3/4"	10	0.482	2-7/8"	5-15A	0.462	0.525	3A	5A	L5	E6	6NPA
	11	0.510		5-17A	0.488	0.551	5A				
	12	0.532		5-18A	0.512	0.575	6A				

VERNON "A" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 1-1/4"

TUBE			TOOLING SELECTION GUIDE						DEPTH GAGE					
O.D.	BWG	I.D. (AVG.) WALL	EFF. ROLL LENGTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece			
3/4"	13	0.560	3-3/4"	6-13A	0.534	0.611	9A	6A	LS	E6	6NPA			
	14	0.584		6-14A	0.550	0.625	10A							
	15	0.606		6-15A	0.574	0.651	11A							
	16	0.620		6-16A	0.598	0.675	12A							
	17	0.634		6-17A	0.610	0.687	9A	8A						
	18	0.652		6-18A	0.626	0.703	10A							
	19	0.666		6-18A	0.626	0.703	10A							
	20	0.680		6-20A	0.652	0.729	11A							
	21	0.686		6-20A	0.652	0.729	11A							
	22	0.694		6-20A	0.652	0.729	11A							
7/8"	9	0.579	3-3/4"	6-14A	0.550	0.625	10A	6A	LS	E6	6NPA			
	10	0.607		6-15A	0.574	0.651	11A	6A						
	11	0.635		6-17A	0.610	0.687	9A	8A						
	12	0.657		6-18A	0.626	0.703	10A	8A						
	13	0.685		8-9A	0.668	0.730	13A	7A						
	14	0.709		8-9A	0.680	0.742	13A							
	15	0.731		8-10A	0.700	0.762	14A							
	16	0.745		8-11A	0.724	0.786	15A							
	17	0.759		8-11A	0.724	0.786	15A							
	18	0.777		8-12A	0.773	0.835	16A							
	19	0.791		8-13A	0.766	0.843	20A	8A						
	20	0.805		8-13A	0.766	0.843	20A							
	21	0.811		8-13A	0.766	0.843	20A							
	22	0.819		8-14A	0.800	0.877	18A							
1"	8	0.670	3-3/4"	8-8A	0.650	0.712	12.5A	7A	L8	E6	8NPA			
	9	0.704		8-9A	0.680	0.742	13A							
	10	0.732		8-10A	0.700	0.762	14A							
	11	0.760		8-11A	0.724	0.786	15A							
	12	0.782		8-12A	0.773	0.833	16A							
	13	0.810		8-13A	0.766	0.843	20A	8A						
	14	0.834		8-14A	0.800	0.877	18A							
	15	0.856		8-15A	0.823	0.900	19A	8A						
	16	0.870		8-16A	0.844	0.921	20A	10A				L8	E8	8NPA
	17	0.884		8-18A	0.869	0.921	18A							

Vernon Hydraulic Tube Expansion

Type "A" Vernon Tooling

VERNON "A" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 1-1/4"

TUBE

TOOLING SELECTION GUIDE

DEPTH GAGE

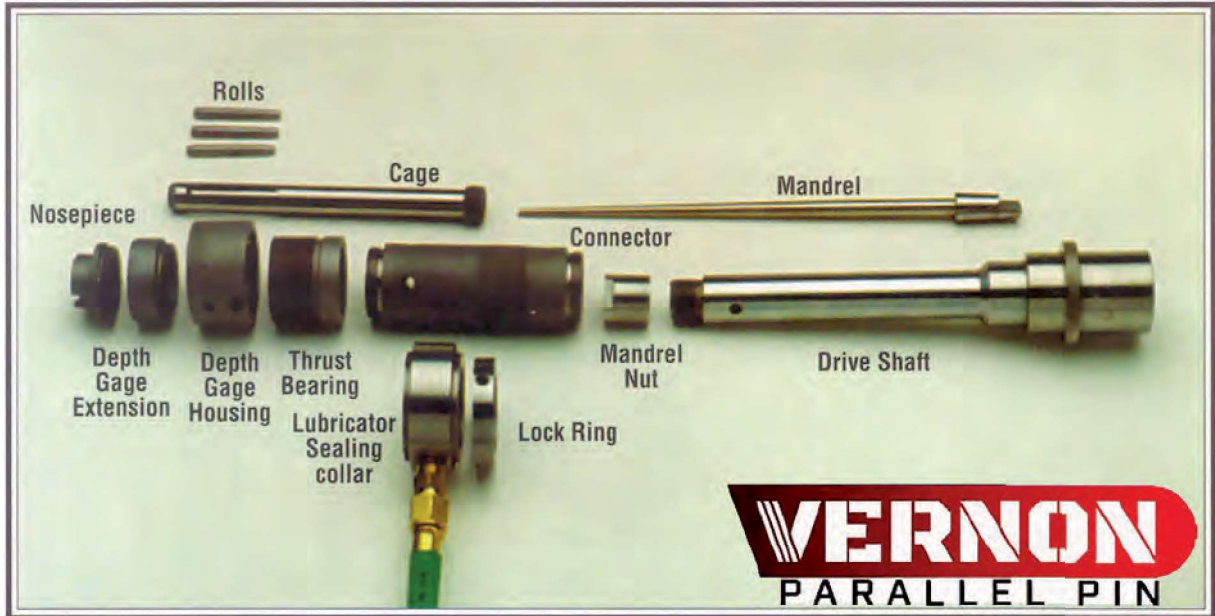
O.D.	BWG	I.D. (AVG.) WALL	EFF. ROLL LENGTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece
1"	18	0.902	3-3/4"	8-18A	0.881	0.953	18A	10A	L8	E8	8NPA
	19	0.916		8-18A	0.881	0.958	18A				
	20	0.930		8-20A	0.901	0.978	19A				
	21	0.936		8-20A	0.901	0.978	19A				
	22	0.944		8-20A	0.901	0.978	19A				
1-1/8"	8	0.795	3-3/4"	8-13A	0.766	0.843	20A	8A	L8	E8	9NPA
	9	0.829		8-14A	0.800	0.877	18A				
	10	0.857		8-15A	0.823	0.900	19A				
	11	0.885		8-18A	0.869	0.921	18A	10A			
	12	0.907		8-18A	0.881	0.958	18A				
	13	0.935		10-9A	0.923	1.000	21A				
	14	0.959		10-9A	0.923	1.000	21A				
	15	0.981		10-10A	0.943	1.020	22A				
	16	0.995		10-11A	0.975	1.052	23A				
	17	1.009		10-11A	0.975	1.052	23A				
18	1.027		10-12A	0.999	1.076	24A					
1-1/4"	8	0.920	3-3/4"	8-18A	0.881	0.953	18A	10A	L8	E8	10NPA
	9	0.954		10-9A	0.923	1.000	21A				
	10	0.982		10-10A	0.943	1.020	22A				
	11	1.010		10-11A	0.975	1.052	23A				
	12	1.032		10-12A	0.999	1.076	24A				
	13	1.060		10-14A	1.047	1.124	26A				
	14	1.084		10-14A	1.047	1.124	26A				
	15	1.106		10-16A	1.095	1.172	28A				

Larger sizes available on request.

All take Thrust Bearing LTB -3/4

VERNON "S" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 2"



TUBE

TOOLING SELECTION GUIDE

DEPTH GAGE

O.D.	BWG	I.D. (AVG.) WALL	EFFECTIVE ROLL LENGTH	MAX ROLLING DEPTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece	Thrust Bearing
1/2"	14	0.384	1-1/8"	5"	4-14S	0.324	0.374	001S	4S	L5	ES	4NP	LTB-3/4
	16	0.370			4-16S	0.360	0.422	1/2S	3S				
	17	0.384			5-11S	0.373	0.435	1/2S					
	18	0.402			4-18S	0.393	0.455	0S					
	19	0.418			4-18S	0.393	0.455	0S					
	20	0.430	1-3/16"		5-13S	0.426	0.485	1A	5S				
5/8"	11	0.385	1-1/8"	5"	5-11S	0.373	0.435	1/2S	3S	L5	E5	5NP	LTB-3/4
	12	0.407			5-12S	0.393	0.455	0S					
	13	0.435	1-3/16"		5-13S*	0.426	0.485	1A	5S				
	14	0.459			5-14S	0.453	0.515	2S					
	15	0.481			5-15S	0.462	0.525	3S					
	16	0.495			5-16S	0.472	0.537	4S					
	17	0.509			5-17S	0.490	0.553	5S					
	18	0.527			5-18S	0.512	0.575	6S					
	19	0.541			5-18S	0.512	0.575	6S					
	20	0.555	1-7/16"	5-1/2"	6-13S	0.534	0.611	9S	6S				

*use 1/2" Connector Extension

Vernon Hydraulic Tube Expansion

Type "S" Vernon Tooling

VERNON "S" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 2"

TUBE

TOOLING SELECTION GUIDE

DEPTH GAGE

O.D.	BWG	I.D. (AVG.) WALL	EFFECTIVE ROLL LENGTH	MAX ROLL DEPTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece	Thrust Bearing
5/8"	21	0.561	1-7/16"	5-1/2"	6-13S	0.534	0.611	9S	6S	LS	E5	5NP	LTB-3/4
	22	0.569			6-13S	0.534	0.611	9S					
3/4"	10	0.482	1-3/16"	5"	5-15S	0.462	0.525	3S	5S	L6	E6	6NP	LTB-3/4
	11	0.510			5-17S	0.490	0.553	5S					
	12	0.532			5-18S	0.512	0.575	6S					
	13	0.560	1-7/16"		6-13S	0.534	0.611	9S	6S				
	14	0.584			6-14S	0.550	0.627	10S					
	15	0.606			6-15S	0.574	0.651	11S					
	16	0.620			6-16S	0.598	0.675	12S					
	17	0.634			6-17S	0.610	0.687	9S	8S				
	18	0.652			6-18S	0.626	0.703	10S					
	19	0.666			6-18S	0.626	0.703	10S					
	20	0.680			6-20S	0.650	0.727	11S					
	21	0.686			6-20S	0.650	0.727	11S					
22	0.964			6-20S	0.650	0.727	11S						
7/8"	9	0.579	1-7/16"	5-1/2"	6-14S	0.550	0.627	10S	6S	L6	E6	7NP	LTB-3/4
	10	0.607			6-15S	0.574	0.651	11S					
	11	0.635			6-17S	0.610	0.687	9S	8S				
	12	0.657			6-18S	0.626	0.703	10S					
	13	0.685			8-9S	0.668	0.730	13S	7S				
	14	0.709			8-9S	0.680	0.742						
	15	0.731			8-10S	0.700	0.762	14S					
	16	0.745			8-11S	0.724	0.787	15S					
	17	0.759			8-11S	0.724	0.787	15S					
	18	0.777			8-12S	0.773	0.835	16S					
	19	0.791			8-13S	0.766	0.843	20S	8S				
	20	0.805			8-13S	0.766	0.843						
21	0.811			8-13S	0.766	0.843							
22	0.819			8-14S	0.800	0.877	18S						
1"	8	0.670	1-7/16"	5-1/2"	8-8S	0.650	0.712	12½ S	7S	L8	E8	8NP	LTB-3/4
	9	0.704			8-9S	0.680	0.742	13S					
	10	0.732			8-10S	0.700	0.762	14S					
	11	0.760			8-11S	0.724	0.787	15S					
	12	0.782			8-12S	0.773	0.835	16S					

Longer reach expanders are available upon request

VERNON "S" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 2"

TUBE

TOOLING SELECTION GUIDE

DEPTH GAGE

O.D.	BWG	I.D. (AVG.) WALL	EFFECTIVE ROLL LENGTH	MAX ROLL DEPTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece	Thrust Bearing
1"	13	0.810	1-7/16"	5-1/2"	8-13S	0.766	0.843	20S	8S	L8	E8	8NP	LTB-3/4
	14	0.834			8-14S	0.800	0.877	18S	8S				
	15	0.856			8-15S	0.823	0.900	19S	8S				
	16	0.870			8-16S	0.844	0.921	20S	10S				
	17	0.884			8-18S	0.869	0.946	18S					
	18	0.902			8-18S	0.881	0.958						
	19	0.916			8-18S	0.881	.958						
	20	0.930			8-20S	0.901	0.978	19S					
	21	0.936			8-20S	0.901	0.978						
	22	0.944			8-20S	0.901	0.978						
	1-1/8"	8	0.795	1-7/16"	5-1/2"	8-13S	0.766	0.843	20S	8S	LS	ES	9NP
9		0.829			8-14S	0.800	0.877	18S					
10		0.857			8-15S	0.823	0.900	19S					
11		0.885			8-18S	0.869	0.946	18S	10S				
12		0.907			8-18S	0.881	0.958						
13		0.935	2-1/4"		10-9S	0.923	1.000	21S					
14		0.959			10-9S	0.923	1.000	21S					
15		0.981			10-10S	0.944	1.017	22S					
16		0.995			10-11S	0.975	1.052	23S					
17		1.009			10-11S	0.975	1.052						
1-1/4"	8	0.920	2-1/4"	5-1/2"	10-9S	0.905	0.983	21S	10S	L8	E8	10NP	LTB-3/4"
	9	0.959			10-9S	0.923	1.000						
	10	0.982			10-10S	0.944	1.017	22S					
	11	1.010			10-11S	0.975	1,052	23S					
	12	1.032			10-12S	0.999	1.076	24S					
	13	1.060			10-14S	1.047	1.124	26S					
	14	1.064			10-14S	1.047	1.124						
	15	1.106			10-16S	1.095	1.172	28S					
	16	1.120			10-16S	1.095	1.172						
	17	1.134			10-17S	1.109	1.186	29S					
1-3/8"	8	1.045	2-1/4"	5-1/2"	10-12S	.999	1.076	24S	10S	L8	E8	10NP	LTB-3/4"
	9	1.079			10-14S	1.047	1.124	26S					

Longer reach expanders are available upon request

Vernon Hydraulic Tube Expansion

Type "S" Vernon Tooling

VERNON "S" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 2"

TUBE

TOOLING SELECTION GUIDE

DEPTH GAGE

O.D.	BWG	I.D. (AVG.) WALL	EFFECTIVE ROLL LENGTH	MAX ROLLING DEPTH	Expander Part No.	Minimum Diameter	Maximum Diameter	Roll Set Part No.	Mandrel Part No.	Housing Part No.	Ext. Piece	Nose Piece	Thrust Bearing
1-3/8"	10	1.107	2-1/8"	5-1/2"	10-16S	1.095	1.172	28S	10S	L8	E8	11NP	LTB-3/4
	11	1.135			10-17S	1.109	1.186	29S					
	12	1.157			10-13S	1.127	1.204	30S					
	13	1.185			12-8S	1.161	1.238	32S					
	14	1.209			12-10S	1.200	1.277	33S					
	15	1.231			12-10S	1.200	1.277	33S					
	16	1.245			12-11S	1.226	1.303	34S					
1-1/2"	8	1.170	2-1/8"	5-1/2"	12-8S	1.161	1.238	32S	10S	L8	E8	12NP	LTB-3/4
	9	1.204			12-8S	1.161	1.238	32S					
	10	1.232			12-10S	1.200	1.277	33S					
	11	1.260			12-11S	1.226	1.303	34S					
	12	1.282			12-12S	1.250	1.327	35S					
	13	1.310			12-13S	1.266	1.343	36S					
	14	1.334			12-14S	1.303	1.380	37S					
	15	1.356			12-15S	1.326	1.403	39S					
	16	1.370			12-16S	1.340	1.417	40S					
	17	1.384			12-16S	1.340	1.417	40S					
	18	1.402			12-18S	1.374	1.451	42S					
	19	1.416			12-18S	1.374	1.451	42S					
	20	1.430			14-9S	1.419	1.579	40S-20	12S				LTB-1
1-5/8"	8	1.295	2-1/8"	5-1/2"	12-13S	1.266	1.343	36S	10S	L8	E13	13NP	LTB-3/4
	9	1.329			12-14S	1.303	1.380	37S					
	10	1.357			12-15S	1.326	1.403	39S					
	11	1.385			12-18S	1.374	1.451	42S					
	12	1.407			12-18S	1.374	1.451						
	13	1.435			14-9S	1.419	1.579	40S-20	12S	L15	E14		LTB-1
	14	1.459			14-9S	1.419	1.579						
	15	1.481			14-9S	1.419	1.579						
16	1.495			14-9S	1.419	1.579							
1-3/4"	9	1.454	2-1/8"	5-1/2"	14-9S	1.419	1.579	40S-20	12S	L15	E14	14NP	LTB-1
	10	1.482			14-9S	1.419	1.579						
	11	1.510			14-11S	1.491	1.651	41S					

Longer reach expanders are available upon request

VERNON "S" TYPE TUBE EXPANDERS

TUBE O.D. RANGE: 1/2" THRU 2"

TUBE

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1-3/4"	12	1.532	2-1/4"	5-1/2"	14-11S	1.491	1.651	41S	12S	L15	E14	14NP	LTB-1
	13	1.560			14-11S	1.491	1.651						
	14	1.584			14-11S	1.491	1.651						
	15	1.606			14-16S	1.591	1.751	46S					
	16	1.620			14-16S	1.591	1.751						
1-7/8"	8	1.545	2-1/4"	5-1/2"	14-11S	1.491	1.651	41S	12S	L15	E15	15NP	LTB-1
	9	1.579			14-11S	1.491	1.651						
	10	1.607			14-16S	1.591	1.751	46S					
	11	1.635			14-16S	1.591	1.751						
	12	1.657			14-16S	1.591	1.751	46S					
	13	1.685		5-1/4"	16-9S	1.635	1.795	49S					
	14	1.709			16-9S	1.635	1.795						
	15	1.731			16-9S	1.635	1.795						
16	1.745			16-9S	1.635	1.795							
2"	8	1.670	2-1/4"	5-1/4"	16-9S	1.635	1.795	49S	12S	L15	E15	16NP	LTB-1
	9	1.704			16-9S	1.635	1.795						
	10	1.732			16-9S	1.635	1.795						
	11	1.760			16-11/15S	1.743	1.903	51S					
	12	1.782			16-11/15S	1.743	1.903						
	13	1.810			16-11/15S	1.743	1.903						
	14	1.834			16-11/15S	1.743	1.903						
	15	1.856			16-11/15S	1.743	1.903						
	16	1.870			16-16S	1.841	2.001	56S					
	18				16-18S	1.908	2.068	63S					
	20			6"	16-20S	1.940	2.160	63S					

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