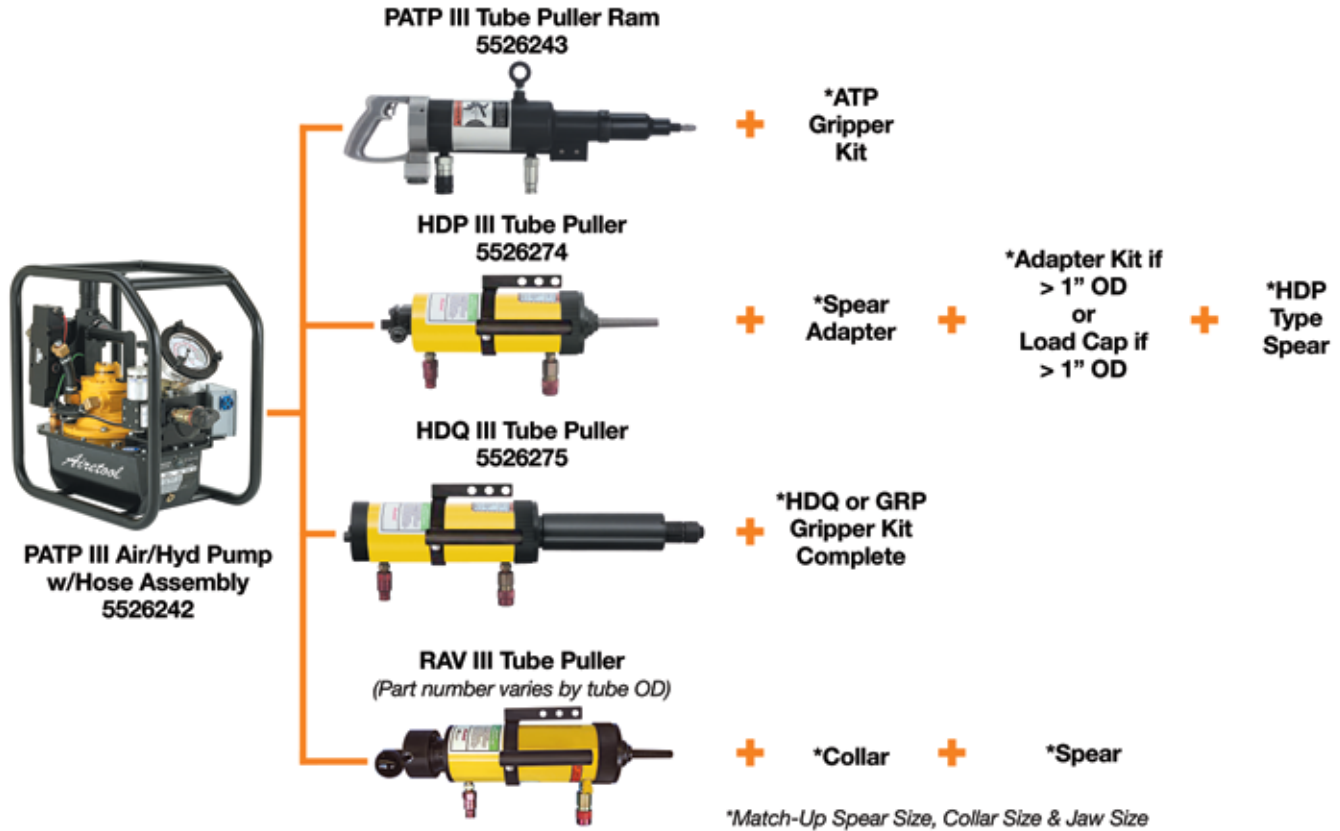


## Tube Pulling Systems & Pumps

Tube Pulling Systems consist of:

1. Pump Assembly - air/hydraulic or electric/hydraulic (includes hose assembly)
2. Ram Assembly - gripper or spear type
3. Grippers or Spears - Gripper kit / adapter kit with spear / collar with spear (depends on ram selected)



## Tube Pulling Pumps & Accessories

The ATP III & PATP III Pumps are engineered to deliver superior performance and durability. They work in combination with a variety of different tube pulling RAMs.

- Pumps come mounted in a roll cage with casters and large wheels for protection and increased mobility
- Control cables and hydraulic hoses are bundled together for greater safety
- Hydraulic hoses have quick connect fittings for easy attachment to the pump and tube pulling ram

Description	Ordering Number
ATP III Electric/Hydraulic Pump with Hoses, Cord and Pendant	5526244
PATP III Air/Hydraulic Pump with Hose Assembly and Pendant	5526242



# ATP III Tube Pullers

Electric Driven

## ATP III Tube Pullers

Electric/Hydraulic Semi-automatic Tube Pullers For Light & Medium Duty Applications

- The Airetool Model ATP III Tube Pulling Ram develops 13-3/4 tons of pulling power
- Easily remove tubes up to 1 in. O.D. from tube sheets up to 1-1/2 in. thickness\*
- Grippers bite uniformly into the tube I.D. as the piston retracts, pulling the tube from the sheet
- Provides a full 4-3/4 inch total pulling length through a double 2-3/8 inch pull
- Electric switch in the handle of the ram enables the hydraulic pump to operate the ram cylinder
- Puller reverses instantly at the end of the pulling cycle or when the trigger is released

\* Puller capacity of the ATP Ram will vary with tube wall thickness, tube sheet thickness and tube material.



PUMP SHOWN WITHOUT WHEEL ASSEMBLY ATTACHED



ATP-III TUBE PULLING RAM



ATP-9000B HCA HOSE/CORD ASSEMBLY

The following components are required for most common tube pulling applications

Ordering Number	Description
5526244	ATP III Electric/Hydraulic Pump with Hoses, Cord, and Pendant
5526295	ATP III Tube Puller Ram Assembly
5525470PT	ATP 9000B HCA Hose/Cord Assembly
5522513	ATP 9064A 15 Cord Assembly
See page 62	Gripper Kit (tube size specific)

# PATP III Tube Pullers

Air Driven



PUMP SHOWN WITH WHEEL ASSEMBLY ATTACHED

## PATP III Tube Pullers

Air/Hydraulic Semi-automatic Tube Pullers For Light & Medium Duty Applications

- The Airetool Model PATP III Tube Pulling Ram develops 13-3/4 tons of pulling power
- Easily remove tubes up to 1 in. O.D. from tube sheets up to 1-1/2 in. thickness\*
- Grippers bite uniformly into the tube I.D. as the piston retracts, pulling the tube from the sheet
- Provides a full 4-3/4 inch total pulling length through a double 2-3/8 inch pull
- Electric switch in the handle of the ram enables the hydraulic pump to operate the ram cylinder
- Puller reverses instantly at the end of the pulling cycle or when the trigger is released

\* Puller capacity of the PATP Ram will vary with tube wall thickness, tube sheet thickness and tube material.



PATP III TUBE PULLING RAM



PATP-9000B HCA HOSE/  
CORD ASSEMBLY



OPTIONAL PENDANT  
ASSEMBLY

The following components are required for most common tube pulling applications

Ordering Number	Description
5526242	PATP III Air/Hydraulic Pump with hose assembly and Pendant
5526243	PATP III Tube Puller Ram Assembly
5524903PT	PATP HT Hose/Tube Assembly
See page 62	Gripper Kit (tube size specific)

Optional pendant for use with HDP III, HDQ III, RAV III and PATP Pumps

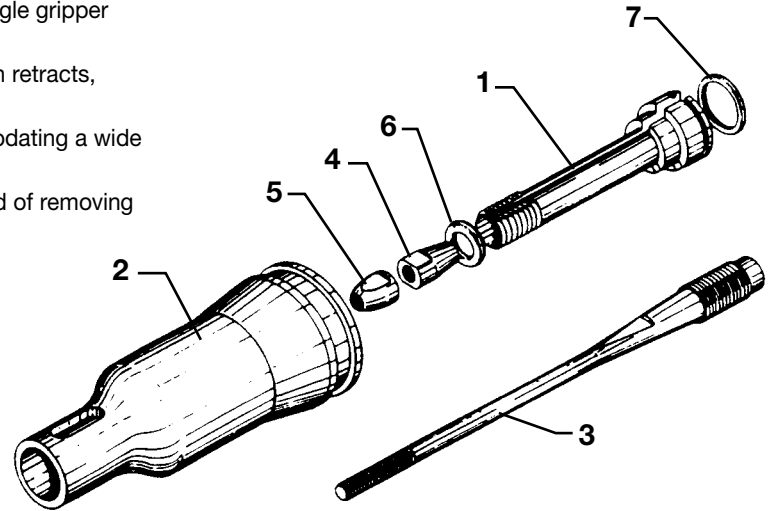
Ordering Number	Description
5524904	PATP HDP Pendant Assembly

# ATP III Gripper Kit

## ATP III & PATP III Gripper Kit Components

Features of the ATP III Tube Pulling System Include:

- Free-floating gripper design results in uniform contact on the tube ID for better pulling characteristics and increased durability
- Grippers are segmented, allowing replacement of single gripper segment in the event of tooth breakage
- Grippers bite uniformly into the tube I.D. as the piston retracts, pulling the tube from the sheet
- Grippers are available from 5/8" through 1" accommodating a wide range of tube gages
- Optional 18 in. extension kit provides a useful method of removing hard-to-reach tubes



Tube Size (O.D.)		Tube Gauge	Part Number	Gripper Kit* Order Number	1 Gripper Complete** Order Number	2 Nose Bushing	3 Draw Rod	4 Expansion Nut	5 Lock Nut	6 Front O-ring	7 Rear O-ring
in.	mm										
.625	15.9	16-18	ATP-9022-568	5520782	5520793	ATP -9042-5/8 (2991245)	ATP -9034-5/8 (2991237)	ATP -9035-5/8 (2991238)	ATP -9036-5/8 (2991239)	200-9 (3105400)	RTV-65 (3094500)
.625	15.9	20-22	ATP-9022-522	5520783	5520794						
.750	19.1	14-15	ATP-9022-34	5520784	5520795	ATP -9014-3/4 (2991218)	ATP -9015-3/4 (2991224)	ATP -9016-3/4 (2991226)	ATP -9017-3/4 (2991227)	2-113 (3010453)	900-83 (3220900)
.750	19.1	16-18	ATP-9022-368	5520785	5520796						
.750	19.1	20-22	ATP-9022-322	5520786	5520797						
.875	22.2	12-14	ATP-9022-724	5520787	5520798	ATP -9027-7/8 (2991232)	ATP -9037-7/8-1 (2991240)	ATP -9038-7/8-1 (2991241)	ATP -9039-7/8-1 (2991242)	2-113 (3010453)	900-83 (3220900)
.875	22.2	16-18	ATP-9022-768	5520788	5520799						
.875	22.2	20-22	ATP-9022-722	5520789	5520800						
1.000	25.4	12-14	ATP-9022-124	5520790	5520801	ATP -9041-1 (2991244)					
1.000	25.4	16-18	ATP-9022-168	5520791	5520802						
1.000	25.4	20-22	ATP-9022-122	5520792	5520803						

\* Gripper Kit consists of 3 gripper segments, one nose bushing, one draw rod, one expansion nut, one lock nut, and both O-Rings.

\*\* Gripper Complete consists of 3 Gripper Segments and both O-Rings.



### For Tube Sizes 1/2" thru 1" the following accessories are required:

- HDP 99 3055 3 Spear Adapter (2900051)
- Tube Pulling Spear - refer to the chart below for size selection
- Optional load cap may be required if surrounding tubes are protruding and are closely spaced

### For Tube Sizes 1-1/8" thru 2-1/2" the following accessories are required:

- HDP 99 3055 3 Spear Adapter (2900051)
- HDP 99 Adapter Kit - refer to the chart below for size selection
- Tube Pulling Spear - refer to the chart below for size selection
- 5526274 HDP III Ram Kit includes:  
5526273 Ram, 5526280 Adapter Lock Assembly, and  
2900007 HDP 99 LC 1 Load Cap

### HDP III Tube Pulling Spears

Tube Size			Order Number	Small Diameter End		Large Diameter End		Overall Length	Flat Size
in.	mm	Gauge		in.	mm	in.	mm		
1/2	12.7	20	2983511	0.427	10.8mm	0.499	12.7mm		
5/8	15.8	12-13	2968758	0.402	10.2mm	0.61	15.5mm		
5/8	15.8	14-15	2968759	0.454	11.5mm	0.662	16.8mm		
5/8	15.8	16-17	2968760	0.489	12.4mm	0.625	15.9mm		
5/8	15.8	18-19	2968761	0.521	13.2mm	0.625	15.9mm		
5/8	15.8	20	2979942	0.545	13.8mm	0.62	15.7mm		
3/4	19.0	10	2968759	0.454	11.5mm	0.662	16.8mm		
3/4	19.0	11-13	2968762	0.505	12.8mm	0.713	18.1mm		
3/4	19.0	14-15	2968764	0.597	15.2mm	0.75	19.1mm		
3/4	19.0	16-17	2968765	0.614	15.6mm	0.75	19.1mm	8-3/4"	7/8" HEX
3/4	19.0	18-19	2968766	0.646	16.4mm	0.75	19.1mm	222mm	22.2mm
3/4	19.0	20	2979941	0.67	17.0mm	0.745	18.9mm		
7/8	22.2	14-15	2968769	0.699	17.8mm	0.875	22.2mm		3/4-10 MALE Thread
7/8	22.2	16-17	2968768	0.74	18.8mm	0.948	24.1mm		
7/8	22.2	17-18	2968770	0.755	19.2mm	0.963	24.5mm		
7/8	22.2	20	2983512	0.8	20.3mm	0.874	22.2mm		
1	25.4	9-10	2968769	0.699	17.8mm	0.875	22.2mm		
1	25.4	11	2968770	0.755	19.2mm	0.963	24.5mm		
1	25.4	12-13	2968771	0.777	19.7mm	0.985	25.0mm		
1	25.4	14-15	2968772	0.829	21.1mm	1	25.4mm		
1	25.4	16-17	2968773	0.869	22.1mm	1	25.4mm		
1	25.4	18-20	2968774	0.896	22.8mm	1	25.4mm		
1-1/4	31.7	7-8	2968775	0.856	21.7mm	1.114	28.3mm		
1-1/4	31.7	10-11	2968776	0.977	24.8mm	1.206	30.6mm		
1-1/4	31.7	12-13	2968778	1.027	26.1mm	1.256	31.9mm	5-1/2"	1-1/4" HEX
1-1/4	31.7	14-15	2968780	1.079	27.4mm	1.308	33.2mm	140mm	38.8mm
1-1/4	31.7	16-18	2968781	1.115	28.3mm	1.344	34.1mm		
1-1/2	38.1	10-11	2968782	1.227	31.2mm	1.456	37.0mm		3/4-10 FEMALE Thread
1-1/2	38.1	12-13	2968784	1.277	32.4mm	1.5	38.1mm		
1-1/2	38.1	14	2968786	1.329	33.8mm	1.5	38.1mm		



### HDP III Ram & Accessories

Model Number	Description	Order Number
	HDP III Tube Pulling Ram	5526273
	HDP III ALA Adapter Lock Assembly	5526280
	HDP 99 3055 3 Adapter	2900051
	HDP 99 3055 5 Adapter Extension	2900011
	HDP 99 3055 3 MF Adapter Extension	2900633
	HDP 99 LC 1 Load Cap	2900007
	HDP 99 LC 5/8 Load Cap	2900008
	HDP 99 LC 3/4 Load Cap	2900009
	HDP 99 LC 7/8 Load Cap	2900010

### HDP III Adapter Kits

Tube O.D.		Adapter Kit*		Extension Chair	
in.	mm	Model Number	Order Number	Model Number	Order Number
1-1/8 - 1-1/2	28.5 - 38.1	HDP 99 3055 AK 1 1/2	5525287	HDP 99 3055 7 1 1/2 QC	2900001
1-3/4	44.4	HDP 99 3055 AK 1 3/4	5525288	HDP 99 3055 7 1 3/4 QC	2900002PT
2	50.8	HDP 99 3055 AK 2	5525289	HDP 99 3055 7 2 QC	2900003
2-1/2	63.5	HDP 99 3055 AK 2 1/2	5525290	HDP 99 3055 7 2 1/2 QC	2900004PT

\*Kits include: HDP 99 3055 5 Adapter Extension (2900011) and extension chair listed in chart above.



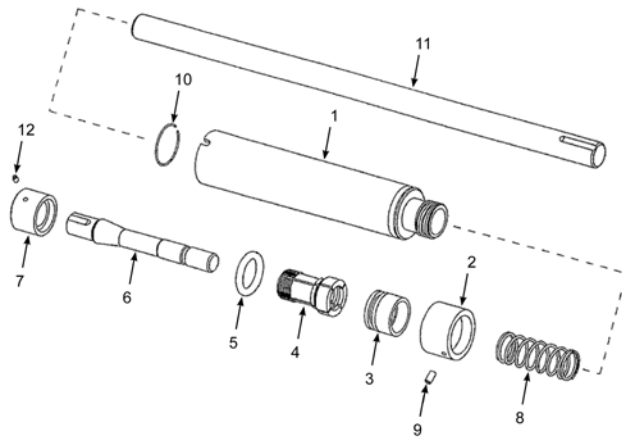
# HDQ III Tube Pullers

## HDQ-III Tube Pullers

- HDQ III Gripper-type tube puller is designed for pulling 1-1/4" thru 1 - 3/4" O.D. tubes in heat exchangers and fire tube boilers using HDQ Gripper Kits (shown below). This gripper-type tube puller makes tube pulling faster and easier. See selection charts below for ordering gripper kits and components for the tube sizes being pulled.



THE FAST AND EASY OPERATION OF THE HDQ GRIPPER BITES INTO THE TUBE FOR A SECURE TUBE PULLING GRIP, THEN RELEASES AUTOMATICALLY WHEN THE PULL IS COMPLETED.



### HDQ III Ram & Accessories

Model Number	Order Number
HDQ III Tube Puller*	5526275PT
HTP III RAM	5526273
HDQ III Adapter Plate	2902631

\* Includes RAM and Adapter Plate

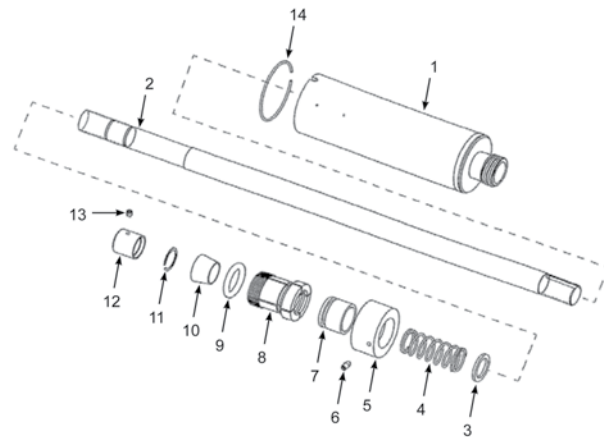
Tube O.D.	Tube Wall BWG	Gripper Kit Complete*	Item Name	HDQ 99 Chair	Position Sleeve	Sleeve Adapter	Gripper	O-Ring	Mandrel	Stop Nut	Spring	Position Sleeve Set Screw	Retainer Ring	Drawbar	Stop Nut Set Screw
in.	mm		Item Number	1	2	3	4	5	6	7	8	9	10	11	12
1-1/4	31.7	HDQ 99 125 8/10 (5525293)	Description	HDQ 99 7 125F QC Chair	HDQ 125 PS	HDQ 125 SA	HDQ 125 1		HDQ 125 M	HDQ 125 1SN	HDQ 31 8	10-32 x 3/16	HDQ 125	HDQ 99 5	10-32 x 3/16
			Order Number	2999993	2985180	2985186	2985168	3094100	2985196	2985191	2985203	8009800	2985357	2900012	8009800
			Quantity	1	1	1	6	1	1	1	1	1	1	1	1
	11-14	HDQ 99 125 11/14 (5525294PT)	Description	HDQ 99 7 125F QC Chair	HDQ 125 PS	HDQ 125 SA	HDQ 125 2	RT V 60	HDQ 125 M	HDQ 125 2SN	HDQ 31 8	10-32 x 3/16	HDQ 125	HDQ 99 5	10-32 x 3/16
			Order Number	2999993	2985180	2985186	2985169	3094100	2985196	2985192	2985203	8009800	2985357	2900012	8009800
			Quantity	1	1	1	6	1	1	1	1	1	1	1	1
15-18	HDQ 99 125 15/18 (5525295)	Description	HDQ 99 7 125F QC Chair	HDQ 125 PS	HDQ 125 SA	HDQ 125 3	RT V 60	HDQ 125 M	HDQ 125 3SN	HDQ 31 8	10-32 x 3/16	HDQ 125	HDQ 99 5	10-32 x 3/16	
		Order Number	2999993	2985180	2985186	2985172	3094100	2985196	2985196	2985203	8009800	2985357	2900012	8009800	
		Quantity	1	1	1	6	1	1	1	1	1	1	1	1	
1-1/2	38.1	HDQ 99 150 8/12 (5525296PT)	Description	HDQ 99 7 150F QC Chair	HDQ 150 PS	HDQ 150 SA	HDQ 150 1	2 213	HDQ 150 M	HDQ 150 1SN	HDQ 31 8	10-32 x 3/16	HDQ 150	HDQ 99 5	10 32 x 3/16
			Order Number	2999994	2985181	2985187	2985170	8010303	2985197	2985193	2985203	8009800	2985668	2900012	8009800
			Quantity	1	1	1	4	1	1	1	1	1	1	1	1
	13-18	HDQ 99 150 13/18 (5525297)	Description	HDQ 99 7 150F QC Chair	HDQ 150 PS	HDQ 150 SA	HDQ 150 2	2 213	HDQ 150 M	HDQ 150 2SN	HDQ 31 8	10-32 x 3/16	HDQ 150	HDQ 99 5	10 32 x 3/16
			Order Number	2999994	2985181	2985187	2985171	8010303	2985197	2985194	2985203	8009800	2985668	2900012	8009800
			Quantity	1	1	1	4	1	1	1	1	1	1	1	1
1-3/4	44.4	HDQ 99 175 8/12 (5525298)	Description	HDQ 99 7 175F QC Chair	HDQ 175 PS	HDQ 175 SA	HDQ 175 1	700-30	HDQ 150 M	HDQ 175 1SN	HDQ 31 8	10-32 x 3/16	1 3/8	HDQ 99 5	1/4-20 x 1/4
			Order Number	2999995	2985182	2985189	2985172	3203900	2985197	2985195	2985203	8009800	2349000	2900012	8006600
			Quantity	1	1	1	4	1	1	1	1	1	1	1	1
	13-18	HDQ 99 175 13/18 (5525299)	Description	HDQ 99 7 175F QC Chair	HDQ 175 PS	HDQ 175 SA	HDQ 175 2	2 216	HDQ 150 M	HDQ 175 1SN	HDQ 31 8	10-32 x 3/16	1 3/8	HDQ 99 5	1/4-20 x 1/4
			Order Number	2999995	2985182	2985189	2985173	8010304	2985197	2985195	2985203	8009800	2349000	2900012	8006600
			Quantity	1	1	1	4	1	1	1	1	1	1	1	1

## HDQ-III Tube Pullers

- HDQ III Gripper-type tube puller is designed for pulling 2" thru 2-1/2" O.D. tubes in heat exchangers and fire tube boilers using GRP Gripper Kits. This gripper-type tube puller makes tube pulling faster and easier. See selection charts below for ordering gripper kits and components for the tube sizes being pulled.



THE FAST AND EASY OPERATION OF THE HDQ GRIPPER BITES INTO THE TUBE FOR A SECURE TUBE PULLING GRIP, THEN RELEASES AUTOMATICALLY WHEN THE PULL IS COMPLETED.



### HDQ III Ram & Accessories

Model Number	Order Number
HDQ III Tube Puller*	5526275PT
HTP III RAM	5526273
HDQ III Adapter Plate	2902631

\* Includes RAM and Adapter Plate

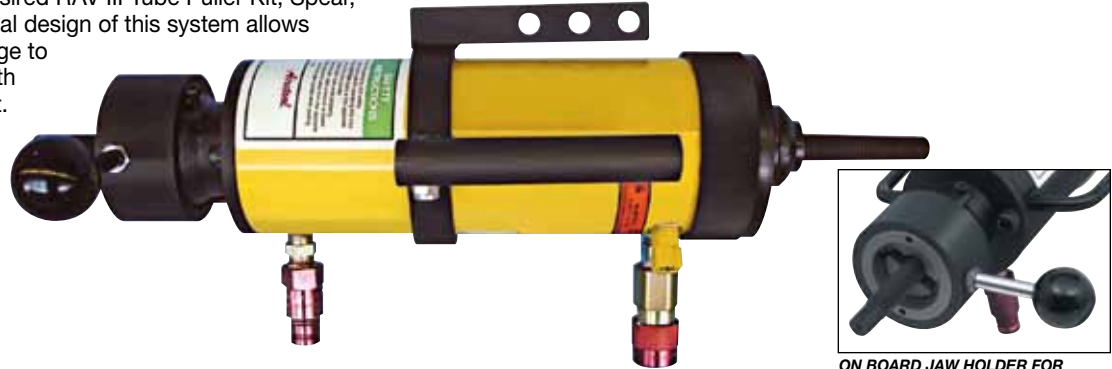
Tube O.D.	Tube Wall BWG	Gripper Kit Complete*	Item Name	HDQ 99 Chair	Drawbar	Stop Plate	Spring	Position Sleeve	Socket Set Screw	Sleeve Adapter	Gripper	O-Ring	Cam	Retainer Ring	Stop Nut	Socket Set Screw	Retainer Spring	
				Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	50.8	8-12 GRP 99 200 8/12 (5525300PT)	Description	HDQ 99 7 200F QC Chair	GRP 99 4	GRP 200 STP	GRP 200 SPR	HDQ 200 PS	10-32 x 1/2	GRP 200 SA	GRP 200 1	2 218	GRP 200 CAM	5160 98	GRP 200 SN	1/4-20 X 5/16	1 5/8	
			Order Number	2999996	2900052	2987488	2986930	2985183	8010346	2986932	2987091	8010363	2988791	8010362	2986933	8010335	2350300	
			Quantity	1	1	1	1	1	1	1	4	1	1	1	1	1	1	
	13-18	50.8	GRP 99 200 13/18 (5525301)	Description	HDQ 99 7 200F QC Chair	GRP 99 4	GRP 200 STP	GRP 200 SPR	HDQ 200 PS	10-32 x 1/2	GRP 200 SA	GRP 200 2	2 221	GRP 200 CAM	5160 98	GRP 200 SN	1/4-20 X 5/16	1 5/8
				Order Number	2999996	2900052	2987488	2986930	2985183	8010346	2986932	2987090	8010408	2988791	8010362	2986933	8010335	2350300
				Quantity	1	1	1	1	1	1	1	4	1	1	1	1	1	1
2-1/4	57.1	8-12 GRP 99 225 8/12 (5525302)	Description	HDQ 99 7 225F QC Chair	GRP 99 4	GRP 200 STP	GRP 200 SPR	HDQ 225 PS	10-32 x 1/2	GRP 200 SA	GRP 225 1	2 222	GRP 225 CAM	5160 98	GRP 225 SN	1/4-20 X 5/16	1 5/8	
			Order Number	2999997	2900052	2987488	2986930	2985184	8010346	2986932	2987092	8010409	2986929	8010362	2986934	8010335	2350300	
			Quantity	1	1	1	1	1	1	1	4	1	1	1	1	1	1	
	13-18	57.1	GRP 99 225 13/18 (5525303)	Description	HDQ 99 7 225F QC Chair	GRP 99 4	GRP 200 STP	GRP 200 SPR	HDQ 225 PS	10-32 x 1/2	GRP 200 SA	GRP 225 2	500 23	GRP 225 CAM	5160 98	GRP 225 SN	1/4-20 X 5/16	2
				Order Number	2999997	2900052	2987488	2986930	2985184	8010346	2986932	2987094	3165700	2982929	8010362	2986934	8010335	2005500
				Quantity	1	1	1	1	1	1	1	4	1	1	1	1	1	1
2-1/2	63.5	8-12 GRP 99 250 8/12 (5525304PT)	Description	HDQ 99 7 250F QC Chair	GRP 99 4	GRP 200 STP	GRP 200 SPR	HDQ 250 PS	10-32 x 1/2	GRP 200 SA	GRP 250 1	2 224	GRP 225 CAM	5160 98	GRP 225 SN	1/4-20 X 5/16	1 5/8	
			Order Number	2999998PT	2900052	2987488	2986930	2985185	8010346	2986932	2987095	8010192	2986929	8010362	2986934	8010335	2350300	
			Quantity	1	1	1	1	1	1	1	4	1	1	1	1	1	1	
	13-18	63.5	GRP 99 250 13/18 (5525305)	Description	HDQ 99 7 250F QC Chair	GRP 99 4	GRP 200 STP	GRP 200 SPR	HDQ 250 PS	10-32 x 1/2	GRP 200 SA	GRP 250 2	2 226	GRP 225 CAM	5160 98	GRP 225 SN	1/4-20 X 5/16	2
				Order Number	2999998PT	2900052	2987488	2986930	2985185	8010346	2986932	2987093	2983713	2986929	8010362	2986934	8010335	2005500
				Quantity	1	1	1	1	1	1	1	4	1	1	1	1	1	1

# RAV III Tube Pullers

## RAV III Tube Pullers

- RAV III Semi-Continuous Tube Pulling Ram allows continuous pulling of tubes up to 1" O.D. (25.4mm)
- Tubes over 1" O.D. have a maximum pulling length of 7" (177mm).

To order: Select the desired RAV III Tube Puller Kit, Spear, and Collar. The universal design of this system allows the user to easily change to a different size tube with minimal additional cost.



ON BOARD JAW HOLDER FOR SEMI-CONTINUOUS PULLING.

### RAV SPEARS

Description	Order Number	Tube I.D.		Jaw Size		Square Size	
		in.	mm	in.	mm	in.	mm
RAV 99 406 5/8	2900189	.215 - .255	5.5 - 6.5	5/8	15.8	1/2	12.7
RAV 99 407 5/8	2900190	.255 - .295	6.5 - 7.5	5/8	15.8	1/2	12.7
RAV 99 408 5/8	2900191	.295 - .335	7.5 - 8.5	5/8	15.8	1/2	12.7
RAV 99 409 5/8	2900192	.335 - .375	8.5 - 9.5	5/8	15.8	1/2	12.7
RAV 99 410 5/8	2900193	.375 - .415	9.5 - 10.5	5/8	15.8	1/2	12.7
RAV 99 411 5/8	2900194	.415 - .455	10.5 - 11.5	5/8	15.8	1/2	12.7
RAV 99 412 5/8	2900195	.455 - .495	11.5 - 12.5	5/8	15.8	1/2	12.7
RAV 99 413 5/8	2900196	.495 - .535	12.5 - 13.5	5/8	15.8	1/2	12.7
RAV 99 414 5/8	2900197	.535 - .570	13.5 - 14.5	5/8	15.8	1/2	12.7
RAV 99 413 3/4	2900198	.495 - .535	12.5 - 13.5	3/4	19.0	5/8	15.8
RAV 99 414 3/4	2900199	.535 - .570	13.5 - 14.5	3/4	19.0	5/8	15.8
RAV 99 415 3/4	2900200	.570 - .615	14.5 - 15.5	3/4	19.0	5/8	15.8
RAV 99 416 3/4	2900201	.615 - .650	15.5 - 16.5	3/4	19.0	5/8	15.8
RAV 99 417 3/4	2900202	.650 - .695	16.5 - 17.5	3/4	19.0	5/8	15.8
RAV 99 418 3/4	2900203	.695 - .730	17.5 - 18.5	3/4	19.0	5/8	15.8
RAV 99 415 7/8	2900204	.570 - .615	14.5 - 15.5	7/8	22.2	3/4	19.0
RAV 99 416 7/8	2900205	.615 - .650	15.5 - 16.5	7/8	22.2	3/4	19.0
RAV 99 417 7/8	2900206	.650 - .695	16.5 - 17.5	7/8	22.2	3/4	19.0
RAV 99 418 7/8	2900207	.695 - .730	17.5 - 18.5	7/8	22.2	3/4	19.0
RAV 99 419 7/8	2900208	.730 - .770	18.5 - 19.5	7/8	22.2	3/4	19.0
RAV 99 420 7/8	2900209	.770 - .815	19.5 - 20.5	7/8	22.2	3/4	19.0
RAV 99 421 7/8	2900210	.815 - .850	20.5 - 21.5	7/8	22.2	3/4	19.0
RAV 99 419 1	2900211	.730 - .770	18.5 - 19.5	1	25.4	3/4	19.0
RAV 99 420 1	2900212	.770 - .815	19.5 - 20.5	1	25.4	3/4	19.0
RAV 99 421 1	2900213	.815 - .850	20.5 - 21.5	1	25.4	3/4	19.0
RAV 99 422 1	2900214	.850 - .885	21.5 - 22.5	1	25.4	3/4	19.0
RAV 99 423 1	2900215	.885 - .925	22.5 - 23.5	1	25.4	3/4	19.0
RAV 99 424 1	2900216	.925 - .965	23.5 - 24.5	1	25.4	3/4	19.0
RAV 99 425 1	2900217	.965 - 1.005	24.5 - 25.5	1	25.4	3/4	19.0
RAV 99 426 1	2900218	1.005 - 1.045	25.5 - 26.5	1	25.4	3/4	19.0
RAV 99 427 1	2900219	1.045 - 1.085	26.5 - 27.5	1	25.4	3/4	19.0
RAV 99 428 1	2900220	1.085 - 1.125	27.5 - 28.5	1	25.4	3/4	19.0
RAV 99 429 1	2900221	1.125 - 1.160	28.5 - 29.5	1	25.4	3/4	19.0
RAV 99 430 1	2900222	1.160 - 1.200	29.5 - 30.5	1	25.4	3/4	19.0
RAV 99 431 1	2900223	1.200 - 1.240	30.5 - 31.5	1	25.4	3/4	19.0
RAV 99 432 1	2900224	1.240 - 1.280	31.5 - 32.5	1	25.4	3/4	19.0
RAV 99 433 1	2900225	1.280 - 1.320	32.5 - 33.5	1	25.4	3/4	19.0
RAV 99 434 1	2900226	1.320 - 1.360	33.5 - 34.5	1	25.4	3/4	19.0
RAV 99 435 1	2900227	1.360 - 1.400	34.5 - 35.5	1	25.4	3/4	19.0
RAV 99 436 1	2900228	1.400 - 1.440	35.5 - 36.5	1	25.4	3/4	19.0
RAV 99 437 1	2900229	1.440 - 1.475	36.5 - 37.5	1	25.4	3/4	19.0
RAV 99 438 1	2900230	1.475 - 1.515	37.5 - 38.5	1	25.4	3/4	19.0

### RAV III Ram

Model Number	Order Number
HTP III Ram	5526273

### Universal Spears

Description	Model Number	Order Number
RAV Spear, 5/8" I.D., 13-24 BWG	RAV 5/8 13-24	7025691PT
RAV Spear, 3/4" I.D., 12-18 BWG	RAV 3/4 12-18	7025689
RAV Spear, 1" I.D., 9-18 BWG	RAV 1 9-18	7025690
RAV Spear, 1-1/8" I.D., 12-18 BWG	RAV 1 1/8 12-18	7025692

### RAV III Ram Kits & Components

Model Number	Tube O.D.			
	5/8" (15.8mm)	3/4" (19.0mm)	7/8" (22.2mm)	1" (25.4mm)
RAV III Tube Puller Kits* w/ Jaw Holders & Jaws	5526276	5526277	5526278	5526279
RAV III Jaw Holders & Jaws	5526282	5526283		5526286
RAV III Jaw Set (includes 4 springs)	7025595	7025552		7025553

\*RAV III Tube Puller Kits include: RAV III Ram, Jaw Holder Assembly and one set of Jaws



### RAV COLLARS

Tube O.D.		Model Number	Order Number	Collar I.D.		Collar O.D.	
in.	mm			in.	mm	in.	mm
1/2	12.7	RAV 99 316	2900176	0.630	16.0	0.865	22.0
5/8	15.8	RAV 99 319	2900177	0.750	19.0	0.985	25.0
3/4	19.0	RAV 99 323	2900178	0.905	23.0	1.14	29.0
7/8	22.2	RAV 99 326	2900179	1.025	26.0	1.26	32.0
1	25.4	RAV 99 326	2900179	1.025	26.0	1.26	32.0
1-1/8	28.5	RAV 99 332	2900181	1.260	32.0	1.495	38.0
1-1/4	31.7	RAV 99 335	2900182	1.375	35.0	1.61	41.0
1-3/8	34.9	RAV 99 339	2900183	1.530	39.0	1.77	45.0
1-1/2	38.1	RAV 99 345	2900184	1.770	45.0	2.005	51.0
1-3/4	44.4	RAV 99 351	2900185	2.005	51.0	2.24	57.0
2	50.8	RAV 99 358	2900186	2.280	58.0	2.515	64.0



## JSP Manual Tube Pullers

Manual tube puller provides economical method for tube removal

- For tube removal applications ranging from 1/4" to 1-1/2" O.D.
- No external power requirement makes it ideal for field service applications
- Manual operation with a hand wrench make the JSP easy to use
- All components have clearly marked sizes for a quick matching of tool to job
- Components are heat-treated high strength steel for greater durability



O.D.		Gauge	Tube Size				JSP Tube Puller Complete		Spare Spears	
In.	mm		Wall Thickness		I.D.		Model Number	Order Number	Model Number	Order Number
		In.	mm	In.	mm					
1/4	6.35	18	0.049	1.24	0.152	3.86	JSP 250 18	5520136	JSP 1/4 18	2989364
3/8	9.52	16	0.065	1.65	0.245	6.22	JSP 375 16	5520914	JSP 3/8 16	2991563
3/8	9.52	18	0.049	1.24	0.277	7.04	JSP 375 18	5520030	JSP 3/8 18	2989016
3/8	9.52	20	0.035	0.88	0.305	7.75	JSP 375 20	5519932	JSP 3/8 20	2988750
1/2	12.70	14	0.083	2.11	0.334	8.48	JSP 500 14	5519689	JSP 1/2 14	2987297
1/2	12.70	16	0.065	1.65	0.370	9.40	JSP 500 16	5519690	JSP 1/2 16	2986892
1/2	12.70	18	0.049	1.24	0.402	10.21	JSP 500 18	5519070	JSP 1/2 18	2986893
1/2	12.70	20	0.035	0.88	0.430	10.92	JSP 500 20	5519691PT	JSP 1/2 20	2987298
5/8	15.88	14	0.083	2.11	0.459	11.66	JSP 625 14	5519692	JSP 5/8 14	2986894
5/8	15.88	16	0.065	1.65	0.495	12.57	JSP 625 16	5519693	JSP 5/8 16	2986895
5/8	15.88	18	0.049	1.24	0.527	13.39	JSP 625 18	5518868	JSP 5/8 18	2986771
5/8	15.88	20	0.035	0.88	0.555	14.10	JSP 625 20	5519694	JSP 5/8 20	2987182
3/4	19.05	14	0.083	2.11	0.585	14.86	JSP 750 14	5519695	JSP 3/4 14	2986896
3/4	19.05	16	0.065	1.65	0.620	15.75	JSP 750 16	5519696	JSP 3/4 16	2986897
3/4	19.05	18	0.049	1.24	0.652	16.56	JSP 750 18	5518804	JSP 3/4 18	2986364
3/4	19.05	20	0.035	0.88	0.680	17.27	JSP 750 20	5519697	JSP 3/4 20	2986769
7/8	22.22	14	0.083	2.11	0.709	18.01	JSP 875 14	5519698	JSP 7/8 14	2986898
7/8	22.22	16	0.065	1.65	0.745	18.92	JSP 875 16	5519699	JSP 7/8 16	2986899
7/8	22.22	18	0.049	1.24	0.777	19.74	JSP 875 18	5519071	JSP 7/8 18	2986900
7/8	22.22	20	0.035	0.88	0.805	20.45	JSP 875 20	5518700	JSP 7/8 20	2987534
1	25.40	14	0.083	2.11	0.834	21.18	JSP 1000 14	5519701	JSP 1 14	2986901
1	25.40	16	0.065	1.65	0.870	22.10	JSP 1000 16	5519702	JSP 1 16	2986902
1	25.40	18	0.049	1.24	0.902	22.91	JSP 1000 18	5519072	JSP 1 18	2986903
1	25.40	20	0.035	0.88	0.930	23.62	JSP 1000 20	5519703	JSP 1 20	2987209
1	25.40	22-24	0.028-0.022	0.71-0.55	0.944-0.956	23.98-24.30	JSP 1000 22 24	5519926	JSP 1 22 24	2988730
1-1/2	38.10	14	0.083	2.11	1.334	33.88	JSP 1500 14	5526266PT	JSP 1 1/2 14	2989292

Additional sizes are available. Contact technical service for details.