

EZY MAT - II

Portable pre-Swaging machine



EZY- MAT II
Hy-Lok's Auto Pre-swaging and Flaring machine

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Hy-Lok's Auto pre-swaging machine

For safe, simple, and cost-effective assembly of larger fittings.

larger tube fittings often require more effort to assemble properly than can be consistently achieved using hand wrenches. Hy-Lok's Auto pre-swaging machine to make the assembly of larger fitting :

- **Safer.** The Auto pre-swaging machine helps assure consistently correct assembly of larger fittings
- **Simpler.** Interchangeable die sets allow easy conversion from one tube and fitting size to another.
- **More cost-efficient.** Using the Auto pre-swaging machine extends fitting life and reduces assembly time.



Using the Auto pre-swaging machine, the Hy-Lok nut and ferrule system is initially set onto the tubing. The pre-set fitting and tube assembly is then easily installed by following the Hy-Lok reassembly instruction.

Features & Benefits

- One basic Auto pre-swaging machine for all size
- Provides versatility and value by covering size from 1/2" through 2" and 12mm through 50mm.

General Information

EZY-MAT II, Hy-Lok's Auto Hydraulic Pre-swaging Machine, designed for use for all Hy-Lok tube fittings ranging 1/2"-2" (12-38mm), The unit may therefore be used for a variety of different applications. The standard version is for 220 V supply, a 110 V version is also available on request.

Swaging process

Ferrules, nut and tube being properly pre-assembled, tube end shall rest on die shoulder, tapered face of front ferrule shall contact swaging cone, and nut shall be fixed to swaging jig. Press the "start" switch, initiating the swaging process. The piston with the swaging cone advances. Once the set pressure has been reached the swaging process is concluded. The piston with the swaging cone automatically returns to its initial position and the hydraulic pump unit switches off. Now, pre-swaging is completed.

Technical data

220 V version

- Hydraulic pump : 0.35 kW-2.0 l/min.
- Operating pressure : 0~600 bar.
- Connection : 220 V/1~/50/60 Hz/2.5 A.
- Dimension : 400X400X230 mm.
- Weight : 30 kg.

110 V version

- Hydraulic pump : 0.35 kW-2.0 l/min.
- Operating pressure : 0~600 bar.
- Connection : 110 V/1~/50/60 Hz/6.5 A.
- Dimension : 400X400X230 mm.
- Weight : 30 kg.



How to Set-up EZY-MAT II

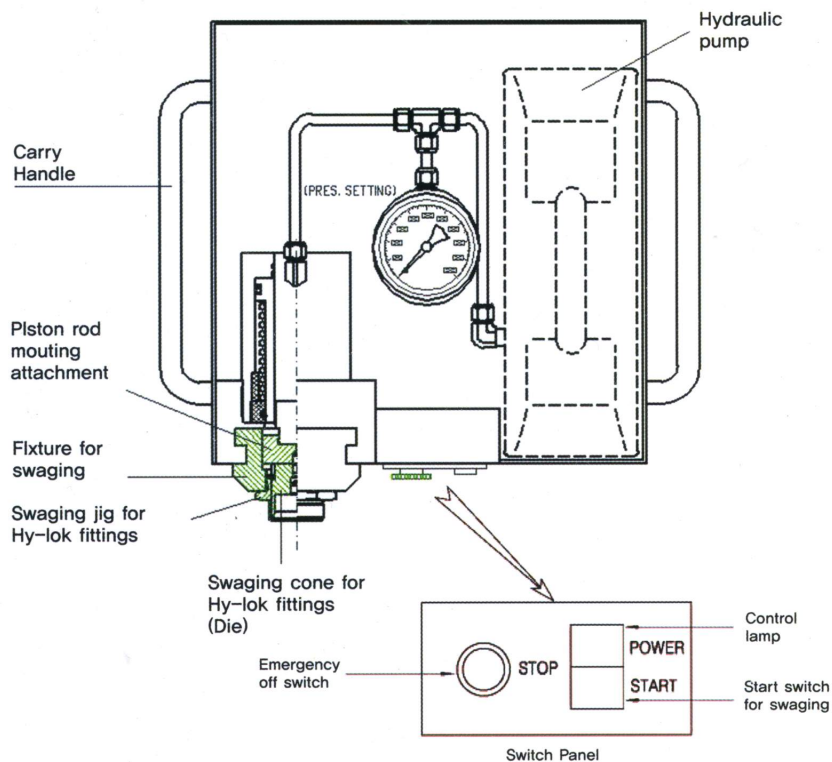
Install swaging jig of desired size firmly into a swaging fixture using wrench. Insert swaging cone into swaging jig. Jig key should fit in swaging cone slot. Position bolt in the center of swaging cone and tighten it using 6mm Allen key to fix swaging cone onto piston.

How to Prepare Tube

1. Check if tube O.D, wall thickness, circularity, hardness and their tolerances are within specs for your application. Also check if surface is free from scratches and dirt.
2. Make a square cut.
3. Remove burs from inner and outer edges of tube.

How to Make Pre-swage

1. Set up the swaging pressure shown in **Table 1** for each size.
2. Assemble front ferrule, back ferrule and nut onto jig.
3. Insert the prepared tube in pre-assembled nut and ferrules and hand-tighten the nut.
4. Keeping tube end in contact with die shoulder, press "start" switch, pre-swaging completed.
5. Unthread nut from swaging jig. Remove pre-swaging tube, by gently rocking it up and down if necessary.
6. Insert the pre-swaging tube into a fitting body, and make sure the ferrule seats in the fitting. Tighten the nut on the fitting body until finger tight without resistance.
7. Tighten the nut with a wrench the additional amount shown in **Table 2** for each size.
8. For continuous operation, go to step 2.



Important !

1. The pressure must be set according to the data stated on the machine. Incorrect pressure setting leads to faulty swaging.
2. Long tube must be supported during the swaging process.
3. Dirt, chips and others can interfere with properly swaging process. The swaging cones should be thoroughly cleaned after each use.
4. When made up Tube fitting:
 - Alignment of fitting and tube shall be done before tighten the nut.
 - Do not tighten the nut without alignment of fitting and tube.
 - Nut will be made up on the fitting body without resistance.

Table 1

Fitting Size	Swaging pressure (bar)
1/2"	80
3/4"	150
1"	200
1-1/4"	290
1-1/2"	350
2"	480

Table 2

Fitting Size	Turns
1/2"	1/2
3/4"	1/2
1"	1/2
1-1/4"	5/8
1-1/2"	5/8
2"	3/8

Part number of pre-swaging component

Fitting Size	Part number	
	Swaging jig	Swaging cone
1/2"	PS-CSD-8	PS-CSJ-8
3/4"	PS-CSD-12	PS-CSJ-12
1"	PS-CSD-16	PS-CSJ-16
1-1/4"	PS-CSD-20	PS-CSJ-20
1-1/2"	PS-CSD-24	PS-CSJ-24
2"	PS-CSD-32	PS-CSJ-32

General Information

EZY-MAT II, Hy-Lok's Auto Hydraulic Pre-swaging Machine, designed for use for all DIN 2353 tube fittings ranging 6-42mm, The unit may therefore be used for a variety of different applications. The standard version is for 220 V supply, a 110 V version is also available on request.

Swaging process

Sleeve, nut and tube being properly pre-assembled, tube end shall rest on swaging cone shoulder, tapered face of sleeve shall contact swaging cone, and nut shall be fixed to swaging cone. Press the "start" switch, initiating the swaging process. The piston with the swaging cone advances. Once the set pressure has been reached the swaging process is concluded. The piston with the swaging cone automatically returns to its initial position and the hydraulic pump unit switches off. Now, pre-swaging is completed.

Technical data

220 V version

- Hydraulic pump : 0.35 kW-2.0 l/min.
- Operating pressure : 0~600 bar.
- Connection : 220 V/1~/50/60 Hz/2.5 A.
- Dimension : 400X400X230 mm.
- Weight : 30 kg.

110 V version

- Hydraulic pump : 0.35 kW-2.0 l/min.
- Operating pressure : 0~600 bar.
- Connection : 110 V/1~/50/60 Hz/6.5 A.
- Dimension : 400X400X230 mm.
- Weight : 30 kg.



How to Set-up EZY-MAT II

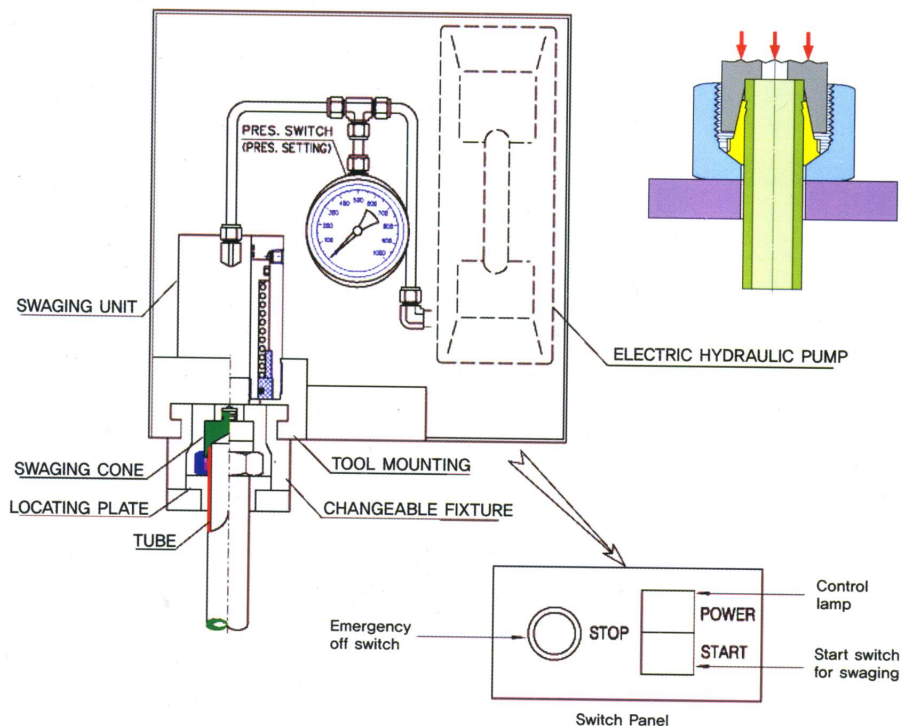
1. Insert the fixture for sleeve pre-swaging into the tool mounting.
2. Select the swaging cone and tube locating plate in accordance with the tube size and type.
3. Attach the swaging cone to the mounting attachment. Place the tube locating plate into the opening in the fixture.

How to Prepare Tube

4. Check if tube O.D, wall thickness, circularity, hardness and their tolerances are within specs for your application. Also check if surface is free from scratches and dirt.
5. Make a square cut.
6. Remove burrs from inner and outer edges of tube.

How to Make Pre-swage

9. Set up the swaging pressure shown in **Table 1** for each size.
10. Lubricate the sleeve, fitting nut and swaging cone, with oil.
11. Slide the fitting nut and sleeve onto the tube locating plate, so that the nut and sleeve are between the locating plate and the swaging cone.
12. Push the tube against the stop in the swaging cone. Hold the tube in this position and press the "start" switch, pre-swaging completed.
13. The pre-swaged tube may be removed from the locating plate. The sleeve has cut into the tube leaving a visible thrown-up collar(check!).
14. Oil the thread and cone of the fitting. Insert the previously pre-swaging tube into the corresponding tube fitting. Tighten the fitting nut with approximately 1/2 a rotation tighter than the point where the increase in force is clearly noticed.
15. For continuous operation, go to step 2.



Important !

5. The pressure must be set according to the data stated on the machine. Incorrect pressure setting leads to faulty swaging.
6. Long tube lengths must be supported during the swaging process.
7. Dirt, chips and others can interfere with properly swaging process. The swaging cones should be thoroughly cleaned after each use.
8. When made up Tube fitting:
 Alignment of fitting and tube shall be done before tighten the nut.
 Do not tighten the nut without alignment of fitting and tube.
 Nut will be made up on the fitting body without resistance.

Table 1

Tube O.DxWall Thickness	DIN/BITE(bar)	Flaring(bar)	Tube O.DxWall Thickness	DIN/BITE(bar)	Flaring(bar)
6 X 1	20	35	18 X 1	65	80
6 X 1.5		35	18 X 1.5		100
8 X 1	30	45	18 X 2		110
8 X 1.5		45	20 X 2	125	
10 X 1	35	35	20 X 2.5	80	150
10 X 1.5		45	20 X 3.5		-
10 X 2		60	22 X 1.5	80	125
12 X 1	45	45	22 X 2		135
12 X 1.5		55	25 X 2.5	110	170
12 X 2		60	25 X 3		190
12 X 2.5		-	28 X 1.5	110	170
14 X 1.5	55	55	28 X 2		190
14 X 2		70	30 X 3	165	240
14 X 2.5		80	30 X 4		260
14 X 3		-	35 X 2	155	250
15 X 1	55	45	35 X 3		300
15 X 1.5		55	38 X 4	215	320
16 X 2	65	80	38 X 5		-
16 X 2.5		110	42 X 2	195	290
			42 X 3		320