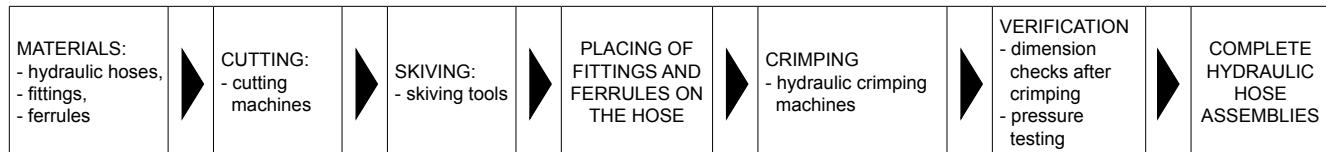


MACHINES AND ACCESSORIES - hose assembly production

Process of crimping high pressure hose assemblies

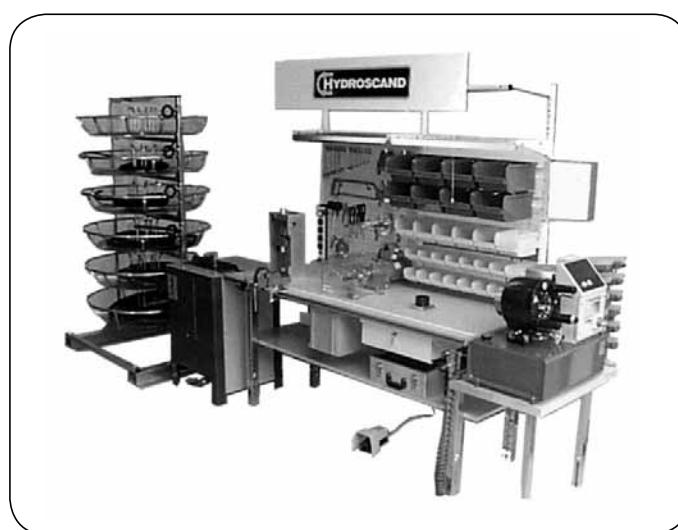
The manufacturing process of flexible hose assembly consists of several stages. Each stage is carried out by the use of special tools/machines. Even in the smallest workshop such a set of equipment makes a technological line described in the table below:



The steps of the hydraulic hose assembly production process:

1. Measuring the length of a hose (several types of tools can be used).
2. Cutting the required length. Cutting is performed on electrically driven cutting machines with smooth or toothed special steel blades.
3. Skiving of external or internal rubber layer of hose skive in a ferrule area - if the hose type requires such an operation. The skiving is performed on skiving machines equipped with special skiving tools that are adjusted to the hose diameter.
4. Inserting ferrules on the hose (manually).
5. Inserting fittings on the hose. It is performed manually or with the use of special tools or equipment.
6. Crimping process. The most important stage of the whole hose assembly process. It is performed on hydraulic crimping machines with a manual, electrical or pneumatic drive.
7. Hose assembly testing. Taking into account customer requirements it may include:
 - measuring outside diameter of the ferrule after crimping,
 - checking the internal "bore collapse" of the fitting after crimping,
 - pressure testing with pressure 1.5 to 2 times higher than the hose working pressure. Performed in special test benches,
 - pressure testing of one hose assembly chosen from a production batch until it bursts. Performed in special test benches.
8. An extra stage of hose assembly process can be introduced - cleaning of the inside of the hose. It is performed on customer request using special equipment and methods e.g. shooting cleaning projectiles through the hose using compressed air or standard methods like water slushing.
9. Marking of the hose assembly to facilitate future recognition. Performed according to particular requirements, usually inscribing information of the producer, date of production and working pressure on the ferrule.

Hose assembly production process described above, refers to the average production line.



CRITERIA FOR EQUIPMENT SELECTION

The most basic issues we have to consider when planning to purchase equipment for a complete assembly line are as follows:

- size (inside diameter) of manufactured hose assemblies - what is the biggest inside diameter that we need a machine for?
- type of manufactured hoses - e.g. hoses with 1 or 2 braids, non-skived only, etc.
- the amount of hoses that we want to manufacture, e.g. 500 pcs/week,
- production homogeneity level - whether frequent hose type changes are to take place?
- financial resources.

A sample stand for hose assembly production for a small workshop is presented on the left.

MACHINES AND ACCESSORIES - hose assembly production

Crimping machines for low pressure hoses



EC-PW-4-8

ECKSTEIN PW 4-8

The small crimping device designed to crimp hoses with textile reinforcement with EC type ferrules. Crimping is carried out using a table top vice. Operation production range (internal hose diameter) about 5 ÷ 10 mm.



EC-PWZ

ECKSTEIN PWZ

The clamping pliers designed to crimp hoses with textile reinforcement with EC type ferrules. Due to the construction of the pliers it is possible to crimp in places that are not easily accessible. Complete with three sets of dies as a standard.

Operation production range (internal hose diameter) about 5 ÷ 10 mm.

EC-UPS-1



ECKSTEIN UPS 1

Manual crimping machine designed to crimp hoses with textile reinforcement with EC type ferrules. Complete with two sets of dies as a standard. A wide range of special purpose dies is also available. Operation production range (internal hose diameter) about 4 ÷ 18 mm.

OP-TUB-H25



TUBOMATIC H25, H25 PI

Crimping machines designed to crimp low pressure hoses. Complete with three sets of dies. Operational production range (internal hose diameter): 10 ÷ 25 mm.

Drive: manual (H25),
pneumatic - maximum pressure 7 bar (H25 PI).

OP-TUB-H25PI



MACHINES AND ACCESSORIES - hose assembly production

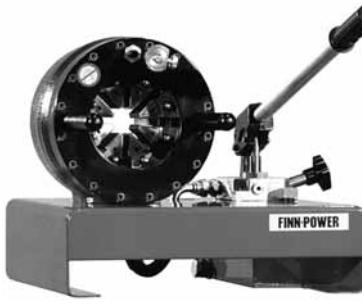
Hydraulic crimping machines - service

TUBES INTERNATIONAL® is the only authorized distributor of FINN-POWER crimping machines in Poland. We offer technical advice, sale, training, warranty and after warranty service.

FINN-POWER
Crimping since 1973



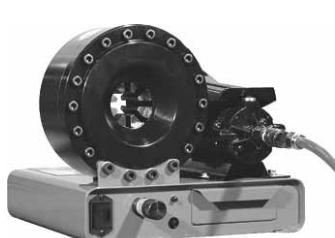
FP-P16HP



FP-P20HP

FINN-POWER P16 HP, P20 HP

Hydraulic crimping machines operated by a hand pump are designed for repair workshops, service units, service vans, etc. Robust construction and low weight make it an ideal solution when repairs have to be done on-site. There is an electric indicator showing the crimped diameter for P16HP and mechanical one for P20HP. The P20HPL version with electric indicator is also available. The crimping head of P20HP can be set either on the right or on the left side.



FP-P16AP



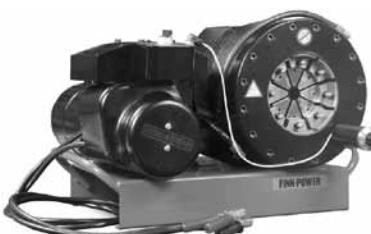
FP-P20AP

FINN-POWER P16 AP, P20 AP

Hydraulic crimping machines operated by a pneumatic pump designed for repair workshops, service units, etc. There is an electric indicator showing the crimped diameter for P16AP and mechanical one for P20AP. Compressed air consumption 570 l/min (P16AP), 400 l/min (P20AP), pressure about 6 ÷ 7 bar.



FP-P20CS



FP-P32CS

FINN-POWER P20 CS, P32 CS

Crimping machines operated by an electric engine 1.6 kW fed from a battery 12 V (or 24 V). It is an essential piece of equipment in service vans. The crimping diameter is set by turning a 10-turn vernier dial of MS control and shown by an electric indicator when reached. The crimping head can be set either on the right or on the left side.

code	max. internal hose diameter [inch]	crimping diameter range [mm]	max. dies opening [mm]	crimping force [T]	theoretical effectiveness [crimps/hour]	weight [kg]
FP-P16HP	1	10 ÷ 45	+20	95	-	26.00
FP-P20HP	1.1/2 (1.1/4*)	10 ÷ 61	+25	137	-	66.00
FP-P16AP	1	10 ÷ 45	+20	95	-	28.00
FP-P20AP	1.1/2 (1.1/4*)	10 ÷ 61	+25	137	-	59.00
FP-P20CS	1.1/2 (1.1/4*)	10 ÷ 61	+25	137	250	83.00
FP-P32CS	2 (1.1/2*)	10 ÷ 87	+33	200	150	125.00

* - for 4 braid hoses

MACHINES AND ACCESSORIES - hose assembly production

Hydraulic crimping machines - service and production



FP-P20X



FP-P20MSN



FP-P21MS

FINN-POWER P20 X, P20 (MS, UC versions), P21 (MS, UC versions)

The P20 crimping machine is a basic solution for service and medium-size production in repair workshops as well as for medium-size plants making hydraulic hose assemblies. Driven by a three-phase electric motor 3 kW (400 V). The P20X crimping machine is a version of the P20 with simplified hydraulic system driven by a one-phase electric motor 1.5 kW (230 V), designed for single-piece production of hose assemblies. The P21 crimping machine is a version of the P20 but with special crimping head construction that facilitates crimping of elbow fittings, recommended for production of large numbers of non-standard fittings.



FP-P32UCN

FINN-POWER P32 (MS, UC versions)

Basic crimping machines for service and production in repair workshops as well as for medium-size plants making hydraulic hose assemblies. The crimping head is bigger than the one of the P20 version and allows to crimp hydraulic hoses up to 2" inside diameter. Driven by a three-phase electric motor 4 kW (400 V). A simplified version P32X is also available.



FP-P51UC

FINN-POWER P51 (MS, UC versions), P60 (UC)

The biggest of the tabletop machines range. Due to the special crimping head construction (no longitudinal movement of the dies) positioning and crimping of hose assemblies is much easier and accurate. When dies with large crimping range are applied it is possible to crimp industrial hoses up to 4" inside diameter. Driven by a three-phase electric motor 4 kW (400 V). Designed for plants and workshops manufacturing hydraulic hose assemblies with larger diameters.

The P60 crimping machine with its main advantage of large dies opening is ideal for crimping industrial hoses.

code	max. internal hose diameter [inch]	crimping diameter range [mm]	max. dies opening [mm]	crimping force [T]	theoretical effectiveness [crimps/hour]	weight [kg]
FP-P20X	1.1/2	10 ÷ 61	+25	137	340	110.00
FP-P20MSN-UCN	1.1/2 (1.1/4*)	10 ÷ 61	+25	137	850	157.00
FP-P21MS-UC	1.1/2 (1.1/4*)	10 ÷ 61	+34	137	850	186.00
FP-P32MSN-UCN	2 (1.1/2*)	10 ÷ 87	+33	200	850	205.00
FP-P32X	2 (1.1/2*)	10 ÷ 87	+33	200	230	150.00
FP-P51MS-UC	2.1/2 (4**)	10 ÷ 87	+46	280	720	260.00
FP-P60UC	2.1/2 (4**)	10 ÷ 87	+64	260	720	260.00

* - for 4 braid hoses

** - for industrial hoses

MACHINES AND ACCESSORIES - hose assembly production

Hydraulic crimping machines - series production

FINN-POWER FP crimping machines are intended for series production. They serve the industry for dozens of years by crimping flexible hydraulic hose assemblies as well as big bore industrial hose assemblies.



FINN-POWER new generation crimping machines benefits:

- New UC control, with extended set of features (e.g. die position display) ensures more user friendly and effective operation process.
- Operating unit and functional buttons with free placing (according to operator choice).
- Side mounting rack for die sets, side table and other accessories.
- New, improved hydraulic drive directly connected to crimping machine or as a separate unit placed in some distance thus enabling more operational space.
- Durable housing made of resistant plastic panels easy to dismantle without tools. It keeps the machine safe and allows fast maintenance.
- Motor stand-by function.

Depending on the type, FINN-POWER crimping machines FP series are manufactured in steel housing with UC control (FP20) or as a new generation crimping machines in plastic housing with UC control (FP120 (S), FP140 (S) and FP145).

code	max. internal hose diameter [inch]	crimping diameter range [mm]	max. dies opening [mm]	crimping force [T]	theoretical effectiveness [crimps/hour]	motor power [kW]
FP-FP20UC	1.1/2	10 ÷ 61	+68	150	2300	3
FP-FP120UCN	2	10 ÷ 87	+68	280	2400	5.5
FP-FP120SUCN	2		+68	280	3000	7.5
FP-FP140UCN	2.1/2 / 4*	10 ÷ 124	+82	320	2000	5.5
FP-FP140SUCN	2.1/2 / 4*		+82	320	2500	7.5
FP-FP145UCN	2.1/2 / 4*	10 ÷ 124	+82	350	2400	7.5

* - for industrial hoses

MACHINES AND ACCESSORIES - hose assembly production

Hydraulic crimping machines - “heavy duty” production



FP-FP160(165)UC



FP-FP170(175)UC

FINN-POWER FP160 (165) (UC version)

Crimping machines for series production, especially suitable to crimp big bore hoses (maximum inside diameter of crimped hose 6" - DN150). Operated by an electric 5.5 kW (400 V) motor. The foot pedal is supplied as a standard. The FP160 and FP165 crimping machines have been used for years by manufacturers of high pressure hydraulics, industrial hoses, in shipyards and in the construction of oil rigs.

FINN-POWER FP170 (175) (UC version)

The FP170 and FP175, „Finn-Power's Titans”, are ideal to crimp hose fittings of large bore hoses (maximum inside diameter of crimped hose 10" - DN250), to reduce diameter of big pipes or join big elements through crimping. The crimping force up to 830 T (FP175).

code	max. internal hose diameter [inch]	crimping diameter range [mm]	max. dies opening [mm]	crimping force [T]	theoretical effectiveness [crimps/hour]	weight [kg]
FP-FP160UC	6	10 ÷ 202	+125	350	1800	2000/225
FP-FP165UC	6	10 ÷ 202	+125	500	1260	2460/225
FP-FP170UC	10	10 ÷ 320	+155	660	1160	4280/245
FP-FP175UC	10	10 ÷ 320	+155	830	1140	4400/310

FP-SP350UC



FINN-POWER SP 100, 100Z, 350, 350S, 1200 (w. UC)

The special design crimping machine allows the hose to be fed from the side. Enables to crimp elaborately shaped and angled hose assemblies (e.g. in automotive industry).

- hydraulic hose size: up to 1.1/4"
- standard crimping diameter range: 10 to 54 mm
- maximum dies opening: +25 mm
- maximum feeding channel height: 63 mm (SP 1200)
- maximum crimping force: 35 T (SP 350), 120 T (SP 1200)
- theoretical effectiveness: 480 crimps / hour (SP 350), 950 (SP 350S), 420 (SP 1200).

MACHINES AND ACCESSORIES - hose assembly production

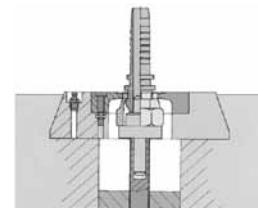
Hydraulic crimping machines (for low pressure hoses and cables)



FP-CC22UC



FP-NC20UC



These machines are designed to crimp flexible low pressure hose assemblies with fittings that do not demand large crimping force (rubber hoses without any or with textile reinforcement, in steel wire braid, PTFE hoses - crimped with ferrules made of steel or aluminium sheet). High production effectiveness achieved through an optimal force and speed ratio. The crimping machines of this series can also be used to crimp fittings of wires, cables and nuts of hydraulic fittings.

code	hose size [inch]	crimping diameter range [mm]	max. dies opening [mm]	crimping force [T]	theoretical effectiveness [crimps/hour]	weight [kg]	dies type
FP-CC22UC	1.1/4	10 ÷ 54	+25	68	1700	125	CC22, P20
FP-CC24UC	1.1/4	10 ÷ 61	+25	130	1280	178	P20
FP-NC20UC	-	12 ÷ 49	+18	50	2100	220	NC20
FP-NC30UC	-	12 ÷ 63	+26	66	2400	240	NC30
FP-NC40UC	-	12 ÷ 105	+26	93	2700	240	NC40



FINN-POWER crimping machines are widely used in many branches of industry for different purposes except crimping hose assemblies. Those applications include: crimping of cables, electric insulators, reducing pipe diameters, forming metal elements.

For more information regarding crimping machines please contact Technical Department of TUBES INTERNATIONAL®.

MACHINES AND ACCESSORIES - hose assembly production

Quick die change system for FINN-POWER crimping machines

Additional accessories available for P type tabletop series of crimping machines are quick die change systems consisting of quick change tool base (QC-Tool Base) with storage place for dies (photo 1) or die set rack (photo 2) and magnetic quick change tool (QC-Tool) that allows to change out a set of dies at once (photo 3). Crimping machines of FP series are supplied with the QC system as a standard.



photo 1

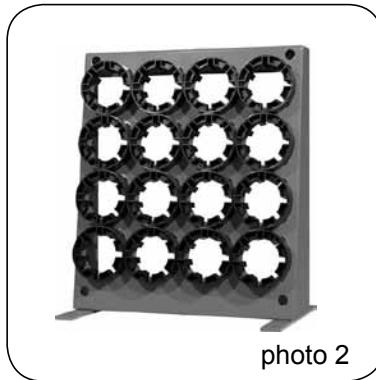


photo 2

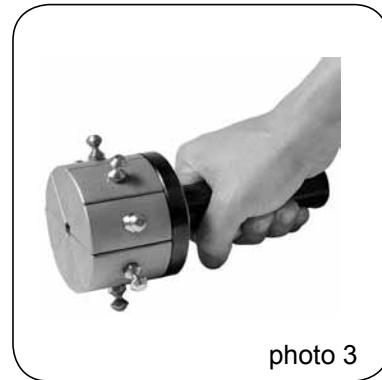
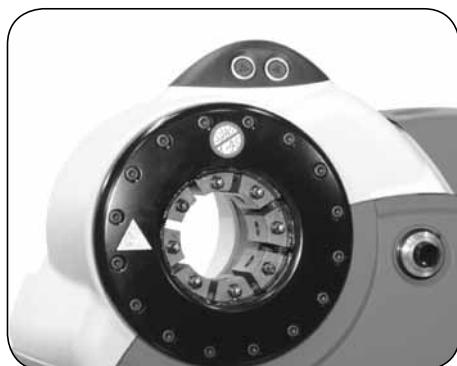


photo 3

code	description
FP-QCT-20X	tool base for P20X with magnetic quick change tool
FP-QCT-20	tool base for P20 / P21 with magnetic quick change tool
FP-RACK-20	die set rack type 20 with magnetic quick change tool
FP-RACK-32	die set rack type 32 with magnetic quick change tool
FP-QCT-51	tool base for P51 / P60 with magnetic quick change tool
FP-QCTN-20	tool base for 20 MS(UC) with magnetic quick change tool
FP-QCTN-32	tool base for 32 MS(UC) with magnetic quick change tool

Control options of FINN-POWER crimping machines



MS(N)

New control solution available in new generation of crimping machines P20 MSN and P32 MSN replacing MS and IS control. Apart from two button operation (crimping - opening) the crimping machine can be operated with foot pedal (option), using automatic backstop (option) or in semi-automatic mode. Equipped with motor stand-by function.

MACHINES AND ACCESSORIES - hose assembly production

Control options of FINN-POWER crimping machines



UC

New version of control option used in most of new generation of FINN-POWER crimping machines intended for series production of hose assemblies. It is an upgraded version of VS control option.

STANDARD VERSION

MOST IMPORTANT FEATURES

- crimping according to set diameter,
- data transfer through USB port,
- manual or automatic operation mode
- graphical user friendly interface,
- indicator of current crimping diameter,
- motor stand-by function,
- control options extensions available, through additional packages.

PACKAGE II

MULTISTAGE CRIMPING

- crimping according to set diameters or pressure rating,
- includes features of PACKAGE I.



PACKAGE I

CRIMPING ACCORDING TO SET PRESSURE VALUE

- ideal for crimping hoses with wide tolerance dimensions or materials sensitive to crimping.



PACKAGE III

PRODUCTION PROCESS MONITORING

- data transfer through USB/FTP connection,
- includes features of PACKAGE II.

A	B	C	D	E	F	G	J	M	N	O	P	Q	R	S
[ID]	[Name]	[Diam]	[Pres]	[Diam]	[Corr]	[Cmt]	[DiamResul]	[DiamMin]	[DiamMax]	[PresResult]	[PresMin]	[PresMax]	[Limit]	
1	FIT-09332	23.000	340	20-23	-0.30000	20	23.160000	-0.100000	0.300000	248	-19	19	0	
2	FIT-09332	23.000	340	20-23	-0.30000	20	23.160000	-0.100000	0.300000	243	-19	19	0	
3	FIT-09332	23.000	340	20-23	-0.30000	20	23.160000	-0.100000	0.300000	243	-19	19	0	
4	FIT-09332	23.000	340	20-23	-0.30000	19	23.150000	-0.100000	0.300000	256	-19	19	0	
5	FIT-09332	23.000	340	20-23	-0.30000	19	23.160000	-0.100000	0.300000	328	-19	19	0	
6	FIT-09332	23.000	340	20-23	-0.30000	300							2	
7	FIT-09332	23.000	340	20-23	-0.30000	240							0	
8	FIT-09332	23.000	340	20-23	-0.30000	240							0	
9	FIT-09332	23.000	340	20-23	-0.30000	200							0	
10	FIT-09332	23.000	340	20-23	-0.30000	200							0	
11	FIT-09332	23.000	340	20-23	-0.30000	150							2	
12	FIT-09332	23.000	340	20-23	-0.30000	100							0	
13	FIT-09332	23.000	340	20-23	-0.30000	80							2	
14	FIT-09332	23.000	340	20-23	-0.30000	80							0	
15	FIT-09332	23.000	340	20-23	-0.30000	0							0	
16	FIT-09332	23.000	340	20-23	-0.30000	0							0	
17	FIT-09332	23.000	340	20-23	-0.30000	110	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	2	
18	FIT-09332	23.000	340	20-23	-0.30000	110	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	0	
19	FIT-09332	23.000	340	20-23	-0.30000	110	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	0	
20	FIT-09332	23.000	340	20-23	-0.30000	110	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	FIT-09332	0	
21	FIT-09332	23.000	340	20-23	-0.30000	123.160000	-0.100000	0.300000	232	-19	19	0		

MACHINES AND ACCESSORIES - hose assembly production

Control options of FINN-POWER crimping machines



MS

Basic control solution for crimping machines intended for single-piece production in repair workshops. Steering with two push-buttons: closing - opening.

The crimping diameter is set by turning a 10-turn vernier dial situated on the head of a crimping machine.



IS

IS control solution is ideal for series crimping and single-piece production. The crimping diameter is set by a 10-turn vernier dial placed on the control panel. Adjustable opening diameter of dies. The dies can also be kept closed (for 2 sec.). Operation in the following modes:

- manual (using two push-buttons - as in MS version),
- semi-automatic (one push-button - closing and opening),
- automatic - using automatic backstop placed behind the head. Crimping starts when an assembly with a fitting is pushed against the backstop. Automatic backstop is supplied as a standard.



VS

VS control solution is designed for full-scale production of various kinds of assemblies. The functions and operation modes are the same as for IS version, with two functions added: crimping diameter can be corrected and the dies can be kept closed for adjustable period of time (up to 5 sec.). The operation is controlled by digital system on the display. The VS control version can store configurations of crimping parameters for immediate recall.

Note:

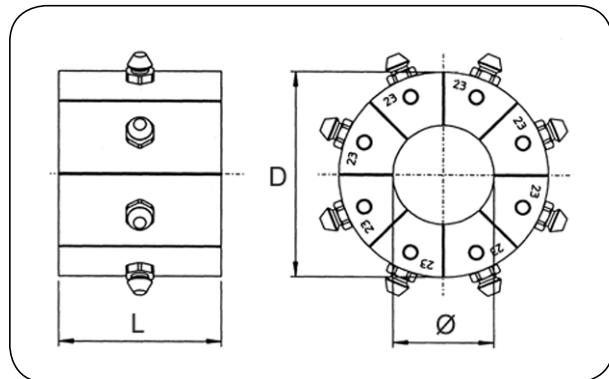
In 2010 onwards, IS and VS control versions were replaced by UC control.

Accessories and maintenance materials



code	description
FP-691417	mechanical backstop for P20 / P21 MS
FP-691418	mechanical backstop for P32 MS
FP-691563	steering foot pedal for 145 / 140 / 120 / FP20 / P60 / P51 / P21 / CC24 / CC22
FPM-043167	oil filter insert P20 / P32 / P51
FPM-706821	oil filter insert P20MSN, P32MSN
FP-019302	grease for crimping machines - package 400g

MACHINES AND ACCESSORIES - hose assembly production



Crimping dies for FINN-POWER machines

All FINN-POWER crimping machines are adapted to work with exchangeable die sets. These die sets are not supplied with machines as a standard - must be ordered separately according to customer requirements. A wide range of special die sets of virtually any dimension or shape but also marking dies for ferrules are available on request.

* - long dies, sample code: FP-20-16L.

16 type		
code	crimping diameter Ø [mm]	LxD [mm]
FP-16-10	10 ÷ 12	55x39
FP-16-12	12 ÷ 14	
FP-16-14	14 ÷ 16	
FP-16-16	16 ÷ 19	
FP-16-19	19 ÷ 23	
FP-16-23	23 ÷ 27	
FP-16-27	27 ÷ 31	
FP-16-31	31 ÷ 38	65x39

140 (140L) type			
code	crimping diam. Ø [mm]	LxD 140 type [mm]	LxD 140L type [mm]
FP-140-84*	84 ÷ 92	110x140	120x140
FP-140-92*	92 ÷ 100		
FP-140-100*	100 ÷ 108		
FP-140-108*	108 ÷ 116		
FP-140-116*	116 ÷ 124		

20 (20L) type			
code	crimping diam. Ø [mm]	LxD 20 type [mm]	LxD 20L type [mm]
FP-20-10	10 ÷ 12	55x84	-
FP-20-12	12 ÷ 14		
FP-20-14	14 ÷ 16		
FP-20-16*	16 ÷ 19		
FP-20-19*	19 ÷ 23		
FP-20-23*	23 ÷ 27		
FP-20-27*	27 ÷ 31		
FP-20-31*	31 ÷ 36	70x84	75x84
FP-20-36	36 ÷ 41		
FP-20-41	41 ÷ 47		
FP-20-47	47 ÷ 54	75x84	-
FP-20-54	54 ÷ 61		

160 type		
code	crimping diameter Ø [mm]	LxD [mm]
FP-160-084	84 ÷ 92	116x220
FP-160-092	92 ÷ 100	
FP-160-100	100 ÷ 108	
FP-160-108	108 ÷ 116	
FP-160-116	116 ÷ 126	
FP-160-126	126 ÷ 136	
FP-160-136	136 ÷ 146	
FP-160-146	146 ÷ 156	
FP-160-156	156 ÷ 166	
FP-160-166	166 ÷ 178	
FP-160-178	178 ÷ 190	
FP-160-190	190 ÷ 202	

32 (32L) type			
code	crimping diam. Ø [mm]	LxD 32 type [mm]	LxD 32L type [mm]
FP-32-10	10 ÷ 12	55x99	-
FP-32-12	12 ÷ 14		
FP-32-14	14 ÷ 16		
FP-32-16	16 ÷ 19		
FP-32-19	19 ÷ 22		
FP-32-22	22 ÷ 26		
FP-32-26	26 ÷ 30		
FP-32-30	30 ÷ 34	70x99	-
FP-32-34	34 ÷ 39		
FP-32-39	39 ÷ 45		
FP-32-45	45 ÷ 51	90x99	-
FP-32-51	51 ÷ 57		
FP-32-57	57 ÷ 63	100x99	-
FP-32-63*	63 ÷ 69		
FP-32-69*	69 ÷ 75	110x99	-
FP-32-74*	74 ÷ 80		
FP-32-78*	78 ÷ 87		

170 type		
code	crimping diameter Ø [mm]	LxD [mm]
FP-170-205	205 ÷ 220	220x220
FP-170-220	220 ÷ 235	
FP-170-235	235 ÷ 250	
FP-170-250	250 ÷ 270	
FP-170-270	270 ÷ 290	
FP-170-290	290 ÷ 320	

Selection table of dies for crimping machine

crimping machine type	dies type								
	16	20	20L	32	32L	140	140L	160	170
P16	X								
P20, P21		X							
CC22, CC24		X							
P32				X					
P51, P60				X		X			
FP20	X	X							
FP120			X						
FP140			X			X			
FP145				X	X	X	X		
FP160, FP165				X	X				X
FP170, FP175				X	X			X	X

MACHINES AND ACCESSORIES - hose assembly production

Hose cutting machines

OP-CTF1-E



TF 1/E

Cutting machine developed to cut hydraulic hoses with 1, 2 and 4 braids of up to 1 1/4" and with 6 braids of up to 1". Used in workshops and service vans.

- maximum hose outside diameter: 60 mm,
- operated by: three-phase 1.1 kW,
optionally 12 V (battery powered),
- toothed cutting blade: Ø 250 mm (2900 r.p.m.),
- weight: 31 kg,
- can be connected to external fume removal system.

OP-CTF1-ECO



TF 1/ECO

Cutting machine developed to cut hydraulic hoses with 1, 2 and 4 braids of up to 1" in diameter.

Used in workshops and in small scale series production.

- maximum hose outside diameter: 45 mm,
- operated by: three-phase 0.75 kW (400 V),
optionally 12 V (battery powered),
- toothed cutting blade: Ø 250 mm (2900 r.p.m.),
- weight: 28 kg,
- can be connected to external fume removal system.

OP-CTF2



TF 2

Cutting machine developed to cut hydraulic hoses with 1, 2 and 4 braids of up to 2" and with 6 braids of up to 1 1/2" in diameter.

Used in workshops and in small scale series production.

- maximum hose outside diameter: 75 mm,
- operated by: three-phase 3 kW (400 V),
- toothed cutting blade: Ø 250 mm (2900 r.p.m.),
- weight: 130 kg,
- can be connected to external fume removal system,
- optional accessories: measuring scale table 2.7 m, centring device, hose meter counter, stroke counter.

OP-CTF2-E



TF 2/E

Cutting machine developed to cut hydraulic hoses with 1, 2 and 4 braids of up to 2" and with 6 braids of up to 1 1/2" in diameter. Used in workshops and in small scale series production.

- maximum hose outside diameter: 75 mm,
- operated by: three-phase 3 kW (400 V),
- toothed cutting blade: Ø 250 mm (2900 r.p.m.),
- weight: 44 kg,
- can be connected to external fume removal system,
- optional accessories: centring device, hose meter counter, stroke counter.

MACHINES AND ACCESSORIES - hose assembly production

Hose cutting machines

OP-CTF3



TF 3

Cutting machine developed to cut hydraulic hoses with 1, 2 braids of up to 3" in diameter and with 4, 6 braids of up to 2" in diameter. Used for series production.

- maximum hose outside diameter: 100 mm,
- operated by: three-phase 5.5 kW motor (400 V),
- toothed cutting blade: Ø 400 mm (2900 r.p.m.),
- weight: 187 kg,
- can be connected to external fume removal system,
- optional accessories: measuring scale table 2.7 m, centring device, hose meter counter, stroke counter.

Cutting machine also available with pedal equipped pneumatic control of hose being cut.

OP-CTF4



TF 4

Cutting machine developed to cut hydraulic hoses with 1, 2 braids of up to 3", with 4 braids of up to 2 1/2", with 6" braids of up to 2" and flexible industrial hoses of up to 3" in diameter.

Used for series production.

- maximum hose outside diameter: 100 mm,
- operated by: three-phase 5.5 kW motor (400 V),
- toothed cutting blade: Ø 400 mm (2900 r.p.m.),
- stroke counter,
- hose is pneumatically pushed against the blade,
- weight: 240 kg,
- optional accessories: measuring scale table 3 m, centring device, hose meter counter, stroke counter, fume extractor.

OP-CTF5



TF 5

Cutting machine developed to cut hydraulic hoses with 1, 2, 4 and 6 braids of up to 3" and flexible industrial hoses of up to 4". Used for series production.

- maximum hose outside diameter: 160 mm,
- operated by: three-phase 7.5 kW (400 V),
- toothed cutting blade: Ø 520 mm (2900 r.p.m.),
- stroke counter,
- adjustable cutting speed,
- hose is pneumatically pushed against the blade,
- weight: 480 kg,
- optional accessories: measuring scale table 3 m, hose centring device, hose meter counter, fume extractor.

OP-CTF5-ECO



TF 5/ECO

Cutting machine developed to cut hydraulic hoses with 1, 2, 4 and 6 braids of up to 3" and flexible industrial hoses of up to 4". Used for series production.

- maximum hose outside diameter: 160 mm,
- operated by: three-phase 7.5 kW (400 V),
- toothed cutting blade: Ø 520 mm (2900 r.p.m.),
- adjustable cutting speed,
- hose is pneumatically pushed against the blade,
- weight: 340 kg,
- optional accessories: measuring scale table 3 m, hose centring device, hose meter counter, stroke counter, fume extractor.

MACHINES AND ACCESSORIES - hose assembly production

Hose cutting machines



HY-9085-01-01

KNIFE CUT 4-30 BT

A pneumatic cutting machine intended to cut rubber and thermoplastic hoses with textile braid and plastic hoses with external diameter ranging from 4 mm up to 30 mm. Equipped with tools for cutting single and double hoses. Operated with a foot pedal. Ensures clean and straight cut.

- maximum hose outside diameter: 30 mm,
- pneumatically operated 6 bar,
- cutting power 1683 N,
- weight: 14 kg.



HY-9006-01-00

MINI CUT 5-50

A cutting machine developed to cut hydraulic hoses with 1 or 2 braids of up to 2" in diameter and with 4 braids of up to 1.1/4" in diameter. Designed for workshops and service vans.

- maximum hose outside diameter: 80 mm,
- operated by: three-phase 3 kW motor,
12/24 V 1.1 kW motor (battery powered),
- speed of revolutions: 2880 r.p.m.,
- standard cutting blade: Ø 300x3x50 mm - smooth (a toothed blade can also be used),
- weight: 45 kg,
- can be connected to external fume removal system (Ø 63 mm).



HY-9009-00-00

MAXI CUT 5-60 OT

A cutting machine developed to cut hydraulic hoses with 1, 2 or 4 braids of up to 2" in diameter.

Designed for series production of hydraulic hose assemblies.

- maximum hose outside diameter: 80 mm,
- operated by: three-phase 5.5 kW motor,
- pneumatically operated min. 6 bar,
- speed of revolutions: 2850 r.p.m.,
- standard cutting blade: Ø 400x4x50 mm - smooth (a toothed blade can also be used),
- hose is pneumatically pushed against the blade,
- three-grade cutting speed,
- weight: 140 kg,
- can be connected to external fume removal system (Ø 100 mm).



HY-9010-00-00

POWER CUT 5-75 OT

A cutting machine developed to cut hydraulic hoses with 1 or 2 braids of up to 3" in diameter and with 6 braids of up to 2" in diameter.

Designed for series production of hydraulic hose assemblies.

- maximum hose outside diameter: 90 mm,
- operated by: three-phase 7.5 kW motor,
- pneumatically operated min. 6 bar,
- speed of revolutions: 2850 r.p.m.,
- standard cutting blade: Ø 520x4x38 mm - smooth, (a toothed blade can be also used),
- hose is pneumatically pushed against the blade,
- adjustable cutting speed,
- weight: 210 kg,
- can be connected to external fume removal system (Ø 100 mm).

MACHINES AND ACCESSORIES - hose assembly production

Hose cutting machines



FP-CM30

FINN-POWER CM30 (CM30/12V)

A cutting machine developed to cut hydraulic hoses with 1, 2 braids of up to 2" in diameter (CM30/12V - 1.1/4") and with 4 braids of up to 1.1/4" in diameter (CM30/12V - 3/4").

Widely used in repair shops, service vans and car service stations.

- operated by: three-phase 3 kW motor,
12 V, 1.1 kW motor (battery powered)
- speed of revolutions: 2750 r.p.m.,
- standard cutting blade: Ø 300 mm,
- can be connected to external fume removal system,
- weight: 50 kg.



FP-CM35

FINN-POWER CM35

A cutting machine developed to cut hydraulic hoses with 1 and 2 braids of up to 2" in diameter and with 4 braids of up to 1.1/4" in diameter.

Used in repair shops and for small series production.

- operated by: three-phase 3 kW motor,
- speed of rotation: 2750 r.p.m.,
- standard cutting blade: Ø 300 mm,
- can be connected to external fume removal system,
- weight: 60 kg.



FP-CM91

FINN-POWER CM91

A cutting machine developed to cut hydraulic hoses with 1, 2, 4 and 6 braids of up to 3" in diameter.

Used for series production.

- operated by: three-phase 11 kW motor,
- speed of revolutions: 2900 r.p.m.,
- standard cutting blade: Ø 650 mm,
- electric control,
- adjustable cutting speed,
- stroke counter,
- optional accessories: a measuring scale table to measure hose length, fume extractor, engine brake.

MACHINES AND ACCESSORIES - hose assembly production

Hose cutting machines



FINN-POWER CM75 PH

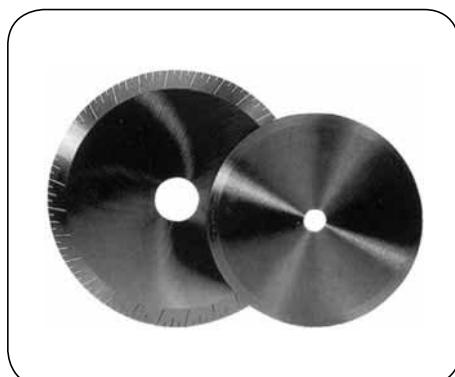
CM 75 PH machine is designed to cut hydraulic hoses with 1, 2 or 4 braids of up to 2" in diameter.

Used for series production of hydraulic hose assemblies.

- maximum hose outside diameter: 80 mm,
- operated by three-phase 7.5 kW motor,
- speed of revolutions: 2840 r.p.m.,
- standard cutting blade: Ø 520x4x38 mm - toothed blade (smooth blade can be used as well),
- hose is pneumatically pushed against the blade,
- adjustable cutting speed,
- weight: 270 kg.

A measuring scale table to measure hose length (2 meter long or with extension module - 4 m) and a fume extractor can be installed as additional equipment.

code	description
FP-CM75PH/S	table to measure hose length
FP-CM75PH/W	fume extractor



Cutting blades

Blades made of hardened steel. Two types of cutting blades available:

- standard (smooth),
- toothed.

The toothed blades enable to cut at higher cutting speed, extremely suitable for 4 and 6 braid hoses.

code	description
HY-9002-00-02	standard blade 200x3x40 mm
HY-9001-00-92	standard blade 250x3x16 mm
HY-9001-00-02	standard blade 250x3x25 mm
HY-9006-06-01	standard blade 250x3x25.4 mm
HY-9006-00-01	standard blade 250x3x32 mm
HY-9003-00-01	standard blade 300x3x16 mm
HY-9003-00-04	standard blade 300x3x50 mm
HY-9009-01-04	standard blade 400x4x50 mm
FP-055201	standard blade 520x4x38 mm

code	description
HY-9006-01-02	toothed blade TS 250x3x40 mm
HY-9003-01-02	toothed blade TS 300x3x50 mm
HY-9009-01-02	toothed blade TS 400x3x50 mm
HY-9005-00-04	toothed blade TS 520x3x50 mm
FP-12251	toothed blade TF 520x4x38 mm

code	description
HY-9006-01-05	adapter - ring 40x25.4 mm
HY-9006-01-06	adapter - ring 40x32 mm
HY-9005-01-07	adapter - ring 50x32 mm
HY-9005-01-04	adapter - ring 50x38 mm
HY-9005-01-05	adapter - ring 50x40 mm

MACHINES AND ACCESSORIES - hose assembly production

Skiving machines for hydraulic hoses



FS50

FINN POWER skiving machine is intended for skiving either external or internal rubber layer of the hydraulic skivable hoses in the diameter range 3/16" ÷ 2". Suitable for single-item and series production of hydraulic hose assemblies. The machine is equipped with a foot pedal as a standard which controls operation (switch on/off) and with a manual switch to change the direction of rotation. Driven by three-phase motor 0,75 kW. Weight 34 kg.

The machine comes with a blade holder and with two cutting blades (for external skiving) as a standard. The depth of skiving is adjusted by a special mechanism, with a knob. FS50 skiver is compatible with external skiving mandrels type FSE and internal skiving mandrels type FSI (to be ordered separately). A separate tool rack type FS-RACK is also available (to be ordered separately).

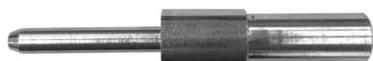


FP-FS50

FP-FS-RACK

FSE

External skiving mandrels designed for skiving the external rubber layer of hydraulic skivable hoses. Suitable for FINN POWER FS50 tool rack.



FSI

Internal skiving mandrels designed for skiving the internal rubber layer of hydraulic skivable hoses. As a standard the mandrel is supplied with a skiving blade, a ring to adjust the skive length and safety screws. Suitable for FINN POWER FS50 tool rack.

code	description
FP-FSE-03	external skiving mandrel 3/16"
FP-FSE-04	external skiving mandrel 1/4"
FP-FSE-05	external skiving mandrel 5/16"
FP-FSE-06	external skiving mandrel 3/8"
FP-FSE-08	external skiving mandrel 1/2"
FP-FSE-10	external skiving mandrel 5/8"
FP-FSE-12	external skiving mandrel 3/4"
FP-FSE-16	external skiving mandrel 1"
FP-FSE-20	external skiving mandrel 1.1/4"
FP-FSE-24	external skiving mandrel 1.1/2"
FP-FSE-32	external skiving mandrel 2"

code	description
FP-FSI-08	internal skiving mandrel 1/2"
FP-FSI-10	internal skiving mandrel 5/8"
FP-FSI-12	internal skiving mandrel 3/4"
FP-FSI-16	internal skiving mandrel 1"
FP-FSI-20	internal skiving mandrel 1.1/4"
FP-FSI-24	internal skiving mandrel 1.1/2"
FP-FSI-32	internal skiving mandrel 2"

MACHINES AND ACCESSORIES - hose assembly production

Skiving machines for hydraulic hoses



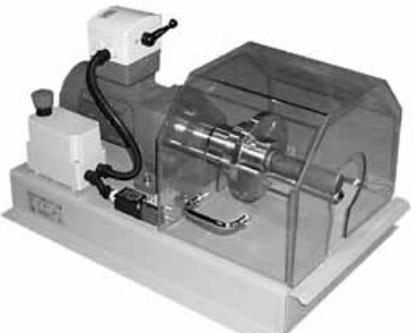
HY-9020-00-05

SKALMAN

Very simple manually operated device designed to skive down external or internal rubber layer of skived hydraulic hoses in a diameter range from 3/16" to 2".

It is irreplaceable in any workshops manufacturing hydraulic hose assemblies.

For application with EST, IST type tools. Mounted in a vice. Weight 4 kg.



HY-9020-04-01

MIDI SKIVE 5-50B

A machine designed to skive down external or internal rubber layer of skived hydraulic hoses with 1, 2 or 4 braids in a diameter range from 3/16" to 2".

Used for series production of hydraulic hose assemblies. For application with EST, IST type tools.

Driven by three-phase 0.37 kW motor. Weight 35 kg.



HY-9082-03-00

HY-9082-02-00

HY-9083-03-00

POWER SKIVE 5-50 TWIN SKIVE 5-50 TWIN PUSH 5-50

A machine designed for semi-automatic skiving of external or internal rubber layer of skived hydraulic hoses with 1, 2, 4 and 6 braids in a diameter range from 3/16" to 2" and for inserting fittings. Used for full-scale production of hydraulic hose assemblies. Efficiency 400 ÷ 600 pcs/hour.

Pneumatically operated, air pressure min. 6 bar.

POWER SKIVE 5-50 (HY-9082-03-00)

- driven by: three-phase 0.75 kW motor,
- for application with EST, IST type tools and tools for fittings inserting

TWIN SKIVE 5-50 (HY-9082-02-00)

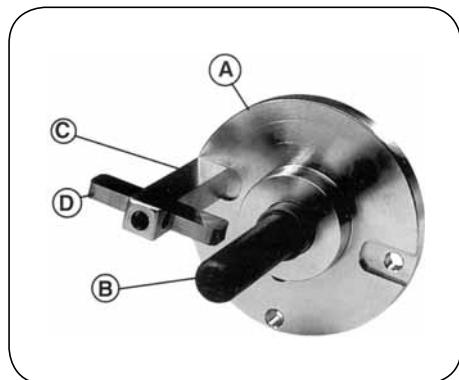
- driven by: three-phase 2x0.75 kW motor,
- for application with EST, IST, OST type tools and tools for fittings inserting,
- simultaneous internal and external skiving (reduced operation time).

TWIN PUSH 5-50 (HY-9083-03-00)

- a machine designed only for assembling straight and elbow fittings.

MACHINES AND ACCESSORIES - hose assembly production

Skiving machines for hydraulic hoses



EST

Tool used for external skiving of rubber layer of hydraulic skived hoses. A complete tool consists of a holder (A) with a knife arm (C), a skiving knife (D) and a mandrel (B). Skiving length is adjustable and set by moving the mandrel forwards or backwards for the length required. Skiving depth is set by pulling the knife to the mandrel to the distance required. The mandrel is made of hardened steel, the holder and the knife arm of zinc plated steel. The skiving knife has four sharp edges. A long knife arm is used when skiving hoses requiring bigger skiving length. For POWER SKIVE machine an EST with two arms and two knives is necessary.

EST-S tools (short knife arm)		
code	name	skiving length
HY-9022-00-00	holder + knife arm (100 mm)	
HY-9022-00-01	knife arm (100 mm)	
HY-9022-00-03	skiving knife	
HY-9022-02-03	mandrel 3/16"	23 ÷ 37 mm
HY-9022-00-04	mandrel 1/4"	23 ÷ 37 mm
HY-9022-00-05	mandrel 5/16"	23 ÷ 40 mm
HY-9022-00-06	mandrel 3/8"	23 ÷ 46 mm
HY-9022-00-08	mandrel 1/2"	23 ÷ 46 mm
HY-9022-00-10	mandrel 5/8"	23 ÷ 65 mm
HY-9022-00-12	mandrel 3/4"	23 ÷ 65 mm
HY-9022-00-16	mandrel 1"	23 ÷ 65 mm
HY-9022-01-20	mandrel 1.1/4"	23 ÷ 60 mm
HY-9022-01-24	mandrel 1.1/2"	23 ÷ 60 mm

EST-L tools (long knife arm)		
code	name	skiving length
HY-9022-01-00	holder + knife arm (125 mm)	
HY-9022-00-02	knife arm (125 mm)	
HY-9022-00-03	skiving knife	
HY-9022-00-16	mandrel 1"	40 ÷ 75 mm
HY-9022-01-20	mandrel 1.1/4"	45 ÷ 85 mm
HY-9022-01-24	mandrel 1.1/2"	45 ÷ 85 mm
HY-9022-01-32	mandrel 2"	45 ÷ 85 mm



IST

Tool used for internal skiving of rubber layer of multi-braid hoses with 3 to 6 reinforcement layers. Internal skiving is necessary when assembling INTERLOCK fittings. A complete IST tool consists of a special skiving knife and a slidable mandrel. Skiving length is adjustable between 5 and 35 mm and set by moving the mandrel forwards or backwards for the length required. Skiving depth is adjustable between 1 and 6 mm by setting the height of the skiving knife. IST is made of hardened steel. The skiving knife is adjusted to one or two sizes of skiving tools and is not included in the tool (ordered separately).

code	description
HY-9025-15-06	skiving tool IST 3/8"
HY-9025-15-08	skiving tool IST 1/2"
HY-9025-15-10	skiving tool IST 5/8"
HY-9025-15-12	skiving tool IST 3/4"
HY-9025-15-16	skiving tool IST 1"
HY-9025-15-20	skiving tool IST 1.1/4"
HY-9025-15-24	skiving tool IST 1.1/2"
HY-9025-15-32	skiving tool IST 2"

code	description	IST
HY-9025-01-05	skiving knife 5 mm	3/8"
HY-9025-01-06	skiving knife 6 mm	1/2"
HY-9025-01-08	skiving knife 8 mm	5/8", 3/4"
HY-9025-01-10	skiving knife 10 mm	1", 1.1/4"
HY-9025-02-10	skiving knife 10 mm (long)	1.1/2", 2"