

# Quick die change solutions

UK



Time saving  
solutions

[www.EASchangesystems.com](http://www.EASchangesystems.com)

## Your benefits

EAS Quick Die & Quick Mold Change systems reduce manufacturing cost. Quick Die & Mold Change systems (QDC & QMC) lower YOUR manufacturing cost by reducing the change over time, the unproductive time of your presses. Frequent die changes allow inventory to be reduced and give faster response to customer requirements. QDC & QMC systems will not only reduce your manufacturing cost at a quick return of investment, it will make you more competitive and it is also safer and easier for your employees.

Complete QDC, SMED and JIT solutions from one **global** source.

### ASK EAS...

for the best solution for your SMED (Single Minute Exchange of Dies) application. For your turn key project supplier and for...

- machine productivity increase,
- labour cost reduction,
- inventory reduction,
- flexibility increase,
- faster response,
- improve safety for your employees.



The ancient Chinese knew already that the most complicated problems can be solved through inventive combinations.

### EAS DOES THE SAME.

Your ideal production can be realised with the seven components of EAS:

- consulting and engineering
- clamping systems
- die lifters and pre rollers
- mono and multi coupler solutions
- die handling solutions
- die maintenance and die storage
- project co-ordination and installation.

**IDEAS**  
COME FROM **EAS**

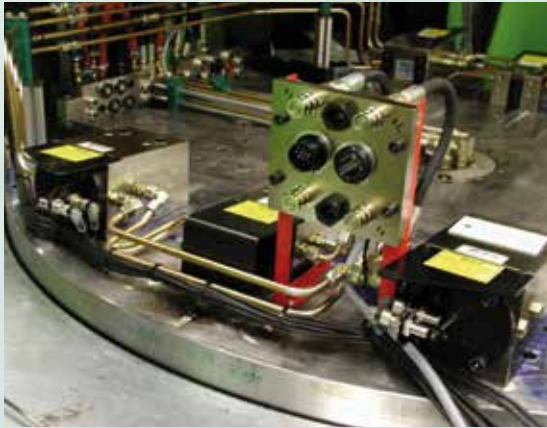
**Resulting in a lower manufacturing cost for YOU.... as time is money.**

# EAS OFFERS YOU THE MOST COMPLETE RANGE OF **QDC** PRODUCTS

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# IDEAS COME FROM EAS



**Hydraulic clamping and multi coupler solutions**



**Hydraulic clamping, die lifting, pump unit with controls and pre roller solution**



**Hydraulic clamping, die handling, pump unit and controls as well as automatic multi coupler solutions**



**Die handling solutions**



**Clamping, pre rollers and die lifter solutions**



**Pneumatic innovative die lifters**



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# 1 INTRODUCTION

## INTRODUCTION OF THE QUICK DIE CHANGE (QDC) CONCEPT

QDC

### THE QUICK DIE CHANGE / SMED PROGRAM

The adoption of a QDC program is usually the result of a switch to a useful Just-In-Time(JIT) manufacturing system. The lean production method. JIT is the production of precisely the necessary quantity at the right time, with the objective of achieving exact performance to schedule. With JIT, there are no inventory buffers as with traditional inventory systems. The ideal lot size is one piece. Long lasting die changes are there for a waste of time and SMED (Single Minute Exchange of Dies) such as the EAS QDC solutions reduce the unproductive change over time of dies to minutes instead of hours.

#### YOUR BENEFITS:

- Increased machine productivity
- Reduced labour cost
- Inventory reduction
- Increased flexibility
- Faster response
- Improved safety



Unproductive change over hours are reduced to only a few minutes.



### STANDARDIZE CLAMPING HEIGHT AND SHUT HEIGHT

Standardization of the clamping height will speed up die changes, avoid confusion and lead to safer set-ups. If one standard clamping height cannot be arrived at, it is imperative that the number of clamping heights are at least be minimized. If possible hydraulic clamping locations may be standardized to allow the use of fixed clamps. If that is not possible EAS offers magnetic clamping systems as the solution.

### RETURN OF INVESTMENT CALCULATIONS (ROI)

To make QDC work in your factory, you must have a clear understanding of the goals and a complete commitment of all parties involved. EAS offers you a detailed consultancy helping you which solution will bring the best R.O.I. for you. This to lower your manufacturing cost to a more competitive level. The following simplified formula will determine the capital investment you can make with the payback period you want.

$$CI = (T \times DC \times M \times TS) / 14,4 \quad \text{or} \quad T = (CI \times 14,4) / (DC \times M \times TS)$$

- CI= capital investment
- T = Payback time in months
- DC= Die changes per week
- M = hourly cost machine
- TS= Time saved in minutes by QDC

#### Example:

The total capital investment (CI)for a press is € 12.750,- for a set of clamps, die lifters , a pump unit and pre rollers.  
 DC = 20 changes a week  
 M = € 75,- per hour  
 TS = 20 minutes saving per die change

$$\text{The payback time in months } T = (12750 \times 14,4) / (20 \times 75 \times 20) = 6.0 \text{ months}$$

Not included is possible labor savings, reduction of inventory, increased safety and improved working conditions.



# Time is money



# DEVELOPING A QDC SYSTEM

## DETERMINE YOUR QDC REQUIREMENTS

Quick Die Change systems can take literally hundreds of forms: developing the right system for YOUR needs may like an overwhelming task, but it is actually quite simple. As the following sample demonstrates, you need to select in the case of a hydraulic clamping system, the cylinders, die lifters, pre rollers and a power unit. Of course EAS is always around to support you with your selection.

Typical example with following press specifications:

Press size	100 tonnes
Upper die weight	0,65 tonnes
Lower die weight	0,85 tonnes
Total die weight	1,5 tonnes
Max press speed	50 strokes/minute
Bolster depth or T-slot length is	900 mm
Die depth is	500 mm
Size of the T-slot is	22 mm DIN



## CYLINDER SELECTION (see also page 65):

The cylinder capacity is a function of the stripping force - that is the force required to separate the two die halves. If you do not know the press's stripping force, simply multiply the press size by 15% till 20% for the slide half and 5% for the bolster half to determine the required clamping force for each die half. In our example we will need a max stripping force of 20% of 100 ton makes 20 tonnes.

For presses that have an upper die half that weighs more than 2% of the press size and or the speed is more than 100 strokes/min., you will have to add about 10% more to compensate for the inertia force. Neither of these conditions applies in our example.

To determine the capacity needed for the slide and the bolster cylinders, divide the stripping force by the number of cylinders of which you need at least four.

20 tonnes: 4 = 5 tonnes per cylinder

Type MHC-70 or ECA 60 pull cylinders or the ERC 60 rocker clamp or the MOD 510 wedge cylinder can be chosen to provide the right clamping force (see selection chart of different cylinders)

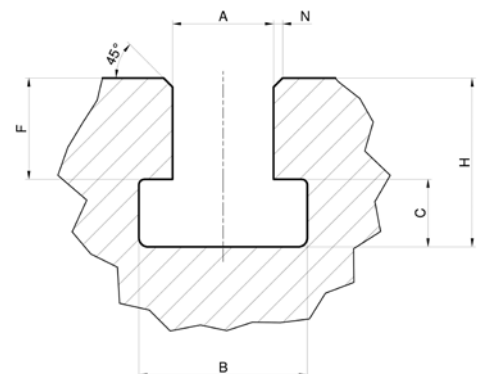
## DIE LIFTER SELECTION:

To determine what die lifter you need, you take the depth of the die = 500 mm and you look into the selection chart of the for example hydraulic operated die lifters for a 22 mm T-slot.

As the bolster length is 900 mm, you might select the EHR-22-21 with a length of 880 mm and with a capacity of 19,9 kN. This means that if the die is rolling on two of these die lifters, you will have 3980 kg lifting capacity, enough for a die of 1500 kg (1,5 tonnes).

T-slot dimensions in mm according DIN 650

A	F min	F max	B	C	H min	H max	N max
18H8	16	24	30-32	12-14	30	36	1,6
22H8	20	29	37-39	16-18	38	45	1,6
28H8	26	36	46-50	20-22	48	56	1,6
36H8	32	46	56-60	25-28	60	71	2,5



# IDEAS COME FROM EAS



**Pull cylinders on a large slide with parking stations**



**Pull cylinders on bolster with parking stations**



**Rocker clamp with automatic movement by air cylinder**



**Large press with MHC clamps, multi couplers, die lifters and pre rollers**



**Wedge clamps for pressed bed clamping**



**Pneumatic operated die lifters.  
Easy to install, easy to remove**



### 2.1 T-SLOT ROCKER CLAMPS SERIES ERC

Single acting and 350 bar

- Capacity: 20, 40, 60, 100, 160 and 250 kN
- Working pressure: 350 bar
- Single acting spring return
- Temperature range: 5°C till 200°C with Viton seals
- Fits in any T-slot according DIN 650
- Adjustable T-slot mounting for DIN 650 T-slot heights

#### DESCRIPTION

These single acting manual positioned rocker clamps are widely used on many QDC applications. Available with clamping forces from 20 kN till 250 kN and with 6 mm effective clamping stroke.

#### Features:

- Standard series of clamps for simple ordering and fast availability.
- Now available with unique height adjustable pin to overcome large tolerances of standard T-slots.
- Easy to set to the correct T-slot height.
- Easy to switch to different machines/presses.
- Lower risk of damaging the T-slot.

These clamping cylinders can easily be operated by the air operated hydraulic pumps from EASchangesystems.

On request also available as flange mounted version.

Also available with a 200 mm stroke air cylinder for automatic retraction from the die as well as automatic approach to the die instead of manual operation. Furthermore the cylinders can be equipped with a inductive sensor to switch of the air moving cylinder if the clamp reaches the die. For extra safety a pilot operate check valve can be mounted into the circuit to avoid the loss of clamping force in case of leakage in hose, pipe or valve.

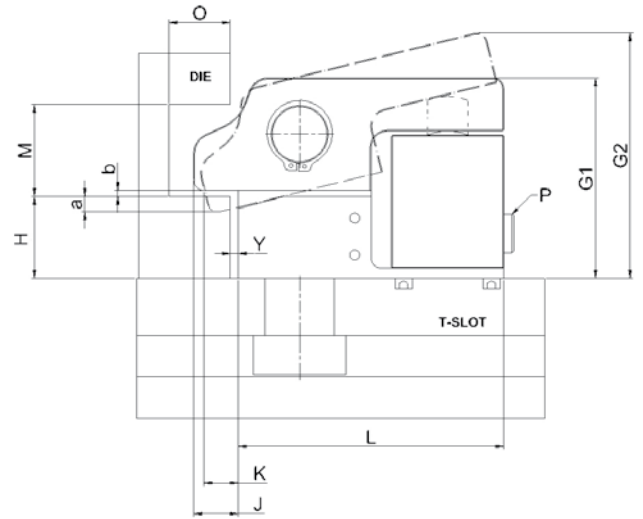
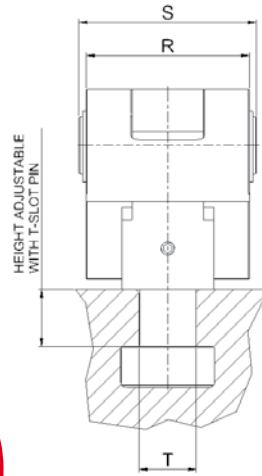
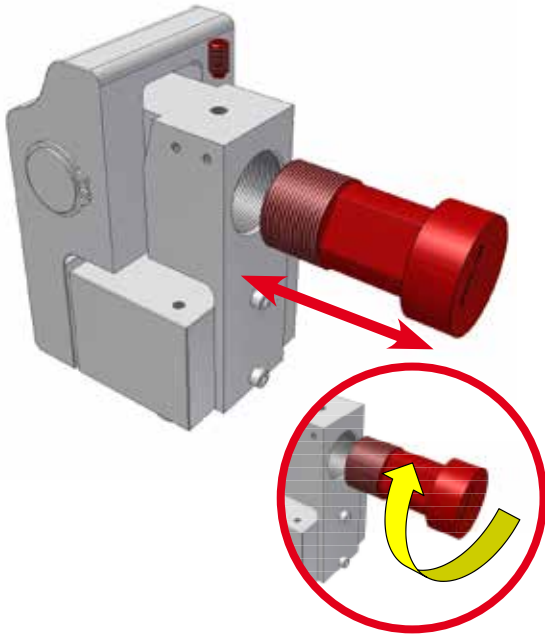


ERC T nut version









Options M for movable, P for inductive sensor and V for check valve





## How to fill in ordering code

**Step 1: clamping force**

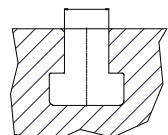
		
20 = 20 kN	40 = 40 kN	60 = 60 kN
		
100 = 100 kN	160 = 160 kN	250 = 250 kN

**Step 2: T-slot size**

	ERC20	ERC40	ERC60
18	18	22	
22	22	28	
	ERC100	ERC160	ERC250
22	28	28	
28	36	36	

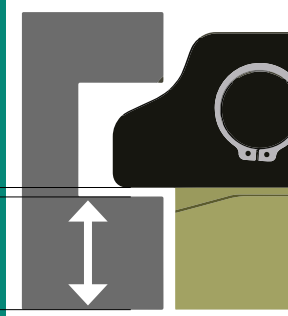
**T-SLOT ACC. TO DIN650**

- 18 H8
- 22 H8
- 28 H8
- 36 H8



**Step 3: clamping height**

	ERC20	ERC40	ERC60
25 (RANGE 20-25 mm)	30 (RANGE 25-30 mm)	40 (RANGE 35-40 mm)	
30 (RANGE 25-30 mm)	35 (RANGE 30-35 mm)	45 (RANGE 40-45 mm)	
35 (RANGE 30-35 mm)	40 (RANGE 35-40 mm)	50 (RANGE 45-50 mm)	
40 (RANGE 35-40 mm)	45 (RANGE 40-45 mm)	55 (RANGE 50-55 mm)	
	50 (RANGE 45-50 mm)	60 (RANGE 55-60 mm)	
	ERC100	ERC160	ERC250
40 (RANGE 35-40 mm)	50 (RANGE 45-50 mm)	60 (RANGE 55-60 mm)	
45 (RANGE 40-45 mm)	55 (RANGE 50-55 mm)	65 (RANGE 60-65 mm)	
50 (RANGE 45-50 mm)	60 (RANGE 55-60 mm)	70 (RANGE 65-70 mm)	
55 (RANGE 50-55 mm)	65 (RANGE 60-65 mm)	75 (RANGE 70-75 mm)	
60 (RANGE 55-60 mm)	70 (RANGE 65-70 mm)	80 (RANGE 75-80 mm)	





- Single acting cylinder
- Available in 20, 40, 60, 100, 160 and 250 kN
- Fits in any T-slot according to DIN 650

- Adjustable T-slot pin to fit your machine
- Max. working pressure 350 bar
- Temperature range 5 °C - 200 °C

### SELECTION CHART

EAS TYPE	Clamping Force [kN]	Operating Pressure [bar]	Cylinder Weight [kg]	Oil Volume [cm <sup>3</sup> ]	Dimensions in [mm]															EAS TYPE
					(T)	(H)	G1	G2	R	S	J	K	L	M	O	P	a	b	Y	
					(T-slot size)	(backplate)														
ERC 20	20	350	2,7	5,7	18 or 22	25 to 40	T+43	T+60	55	62	22	15	95	40	30	G1/4"	6	3	4	ERC 20
ERC 40	40	350	4,5	10,6	18 or 22	30 to 50	T+48	T+66	70	77	22	15	110	40	30	G1/4"	6	3	4	ERC 40
ERC 60	60	350	7,4	17,0	22 or 28	40 to 60	T+58	T+80	80	87	22	15	130	40	30	G1/4"	6	3	4	ERC 60
ERC 100	100	350	12,2	27,1	22 or 28	40 to 60	T+73	T+92	90	97	25	18	160	50	40	G1/4"	6	3	4	ERC 100
ERC 160	160	350	21,5	42,4	28 or 36	50 to 70	T+93	T+110	110	120	25	18	192,5	50	40	G1/4"	6	3	4	ERC 160
ERC 250	250	350	39,7	66,3	28 or 36	60 to 80	T+118	T+136	130	140	30	22	242,5	70	40	G1/4"	6	3	4	ERC 250



**MANDATORY**

**OPTIONAL  
ORDER SEPERATELY**

Fill in 'V' VCV-1



Step 6: optional check valve


Fill in 'P' PSM12NO



Step 5: optional inductive sensor

Fill in 'M' (Available on the 20, 40, 60 & 100 models)

MAC-200



Step 4: optional air movable

## 2 CLAMPING SYSTEMS

### 2.2 T-SLOT PULL CLAMPS SERIES ECA AND MHC

Single acting

EAS has two product lines of the T-slot pull cylinders, the ECA series suitable for normal QDC applications and the high quality MHC series for heavy duty QDC applications.

#### 2.2.1 ECA SERIES

Single acting, 350 bar



Capacity: 40, 60, 100, 160 and 250 kN at 350 bar  
 Working pressure: 350 bar  
 Single acting  
 Temperature range: 5°C till 200°C  
 Viton seals

#### DESCRIPTION

These single acting manual positioned hollow pull cylinders are widely used on many QDC applications. Available with clamping force from 40 till 250 kN and with 8 mm stroke they fit many applications.

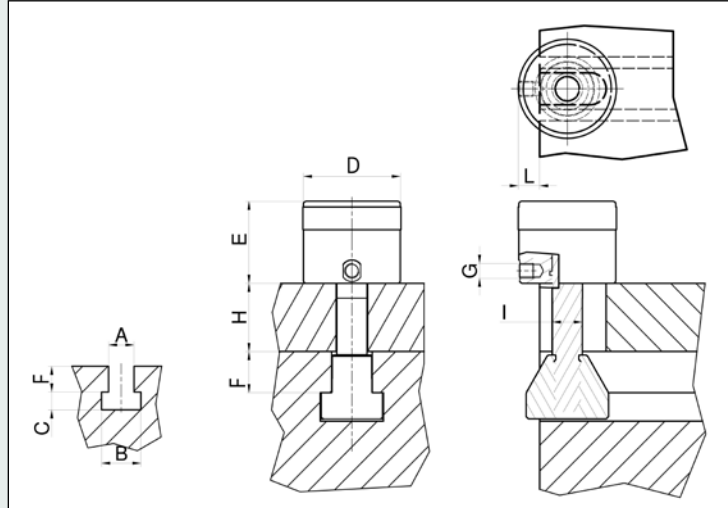
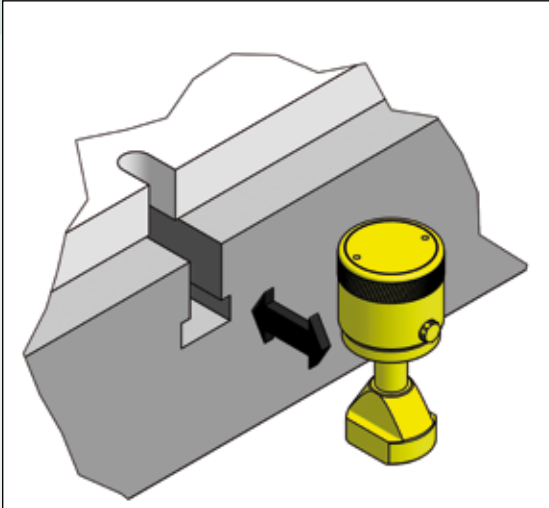
Ordering code: ECA -A/B/C/S

A= clamping capacity in kN, being 40, 60, 100, 160 and 250  
 B= T-slot dimension 'A' in mm, being 22, 28 or 36  
 C= distance H + F in mm. (H= backplate height)  
 S = only if equipped with air operated cylinder with max 200 stroke (others on request)

#### Order Code Example:

ECA 40-22-70 is a 40 kN clamp with the distance H+F of 70 mm and for a 22 mm DIN T-slot.

ECA 40-22-70-150 is the same cylinder but in addition to that an air cylinder to move the clamp into the T-slot with a stroke of 150 mm.



#### SELECTION CHART

EAS Model Number	Clamping force in (kN)	Operating pressure (bar)	Stroke (mm)	Oil capacity (cm <sup>3</sup> )	Max H+F (mm)	Dimensions in mm								
						A	B	C	D	E	F	G	I	Lmax
ECA 40/18/..	40	350	8	8,5	90	18	37	16	65	58	*	G1/4	25	18
ECA 40/22/..	40	350	8	8,5	90	22	37	16	65	58	*	G1/4	25	18
ECA 60/18/..	60	350	8	13,5	100	18	46	20	72	65	*	G1/4	25	18
ECA 60/22/..	60	350	8	13,5	100	22	46	20	72	65	*	G1/4	25	18
ECA 100/22/..	100	350	8	23	110	22	46	20	82	71	*	G1/4	28	20
ECA 100/28/..	100	350	8	23	110	28	46	20	82	71	*	G1/4	28	20
ECA 160/28/..	160	350	8	38	120	28	56	25	106	82	*	G1/4	40	25
ECA 160/36/..	160	350	8	38	120	36	56	25	106	82	*	G1/4	40	25
ECA 250/36/..	250	350	8	57	140	36	56	25	127	100	*	G1/4	50	25

## 2.2.2 MHC SERIES

Single acting, 350 bar



Capacity: 44, 68 and 116 kN at 350 bar  
 Working pressure: 350 bar  
 Single acting  
 Temperature range: 6°C till 60°C

### DESCRIPTION

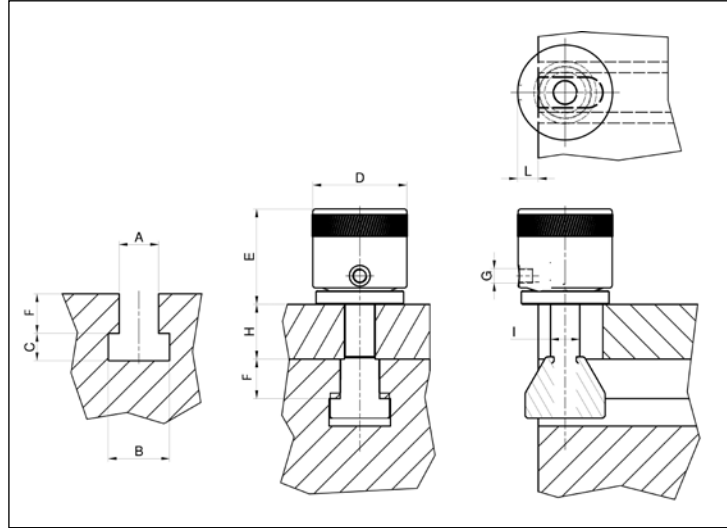
These high quality pull cylinders features also a swivel plate which allows applications at non straight die surfaces. More capacity within the small dimensions due to higher operating pressure of 350 bar.

Ordering code: MHC-A/B/C

A= cylinder capacity in kN, being 50, 70 or 110.  
 B= T-slot dimension "A" in mm, being 22, 28 or 36.  
 C=distance H + F in mm. (H= backplate height)

Order Code Example: MHC 110/28/85.

This is a 116 kN cylinder with dimension H+F 85 mm and for a T-slot of 28 mm.



### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke (mm)	Oil capacity (cm <sup>3</sup> )	Max h+ d (mm)	Dimensions in mm								
						A.	B	C	F	D	E	G	I	Lmax
MHC50/22/..	44	350	12	15	120	22	37	16	*	62	73,5	G 1,4"	17,5	17
MHC70/22/..	68,7	350	12	23,5	150	22	37	16	*	70	77	G 1,4"	21,5	25
MHC70/28/..	68,7	350	12	23,5	150	28	46	20	*	70	77	G 1,4"	21,5	25
MHC110/28/..	116,1	350	12	39,8	200	28	46	20	*	86	85	G 1,4"	27	30
MHC110/36/..	116,1	350	12	39,8	200	26	56	25	*	86	85	G 1,4"	27	30

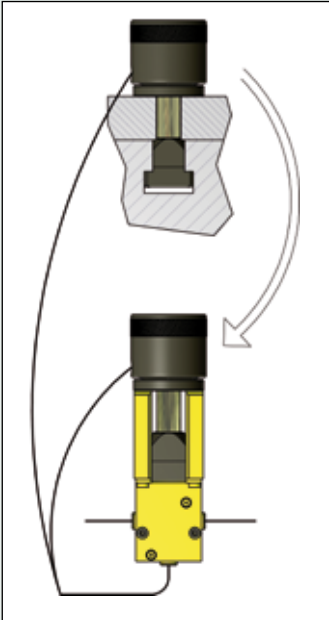


# 2 CLAMPING SYSTEMS

## 2.2.3 PARKING STATIONS FOR T-SLOT ECA AND MHC PULL CYLINDERS

### SERIES PSL

MHC



SELECTION CHART		
EAS Model Number	Dimensions in mm	
	B	C
PSL 18 ..	50	76
PSL 22 ..	53	83
PSL 28 ..	70	91
PSL 36 ..	78	110

**Ordering code: PSL-T-A**

T= T-slot size being 18, 22, 28 of 36

A= Distance H+F in mm of the pull cylinder

Order code exaple: PSL-28-60

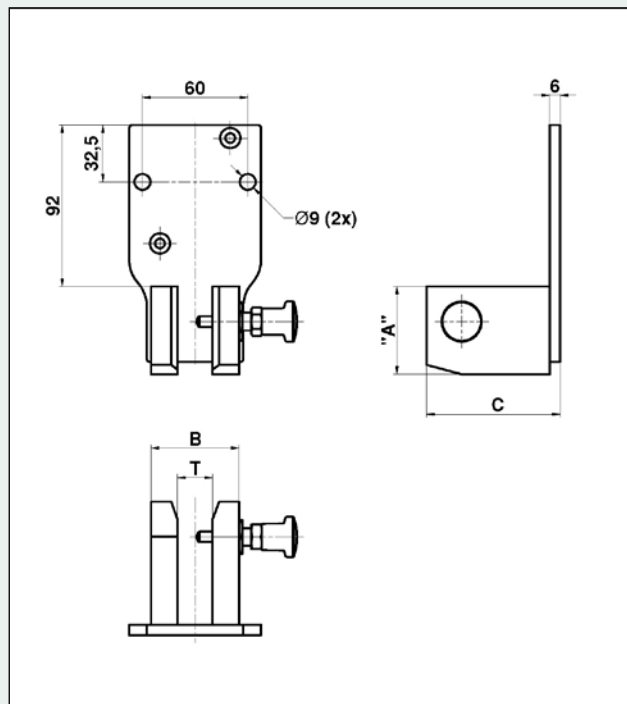
This is a Parking Station for a ECA cylinder for a T-slot 28 mm with distance H + F = 60 mm With a Connection Block.

Please order a extra model number CB-1.

In case a connecting block with pilot operated check valve is required order extra CBCV-1.

**DESCRIPTION**

During a die change it s very convenient to "park" the cylinder connected to the hose on to the press. This will avoid that the cylinders are being damaged when laying on the floor. EAS offers just very simple parking stations PSL in which the cylinders with their T stone are being parked as well as parking stations combined with a Connecting Block for connecting pipes and hoses, type CB-1 with 3 G 1/4' oil connections. If furthermore for extra safety a pilot operated check valve in the connecting block is required type CBCV-1 is available. **Dimensions on request.**



## 2.3 LEDGE CLAMPS, SERIES MLC

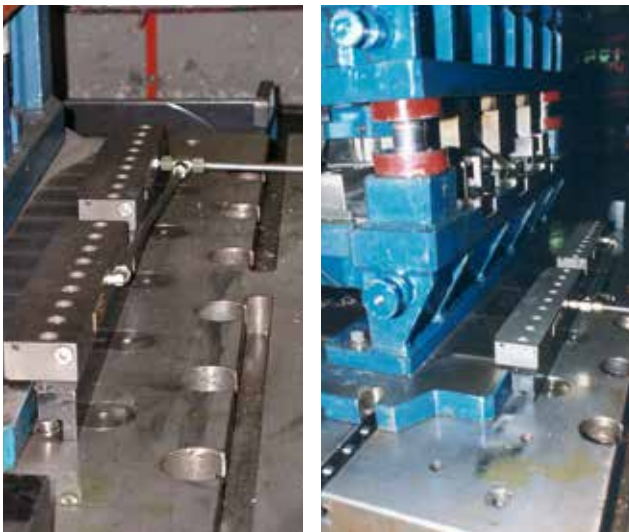
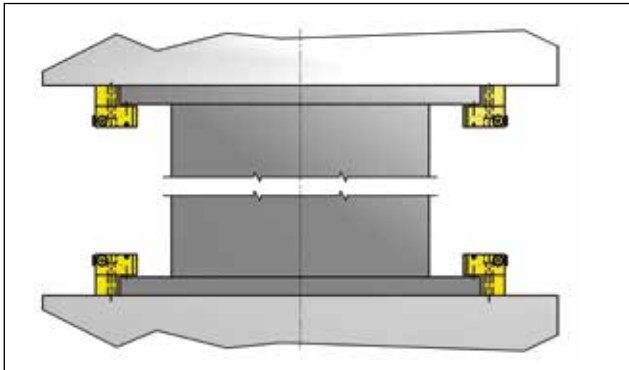
Single acting and 350 bar

Capacity: 63, 95 and 127 kN

Working pressure: 350 bar

Single acting

Temperature range: 5°C till 60°C



### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke (mm)	Oil capacity (cm <sup>3</sup> )
MLC 604	63,4	350	8	14,5
MLC 906	95,1	350	8	21,7
MLC 1208	126,8	350	8	28,9

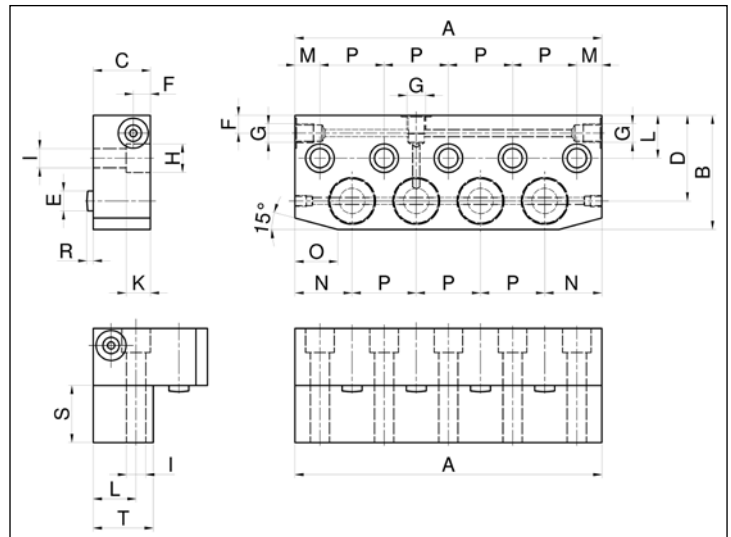
### DESCRIPTION

This clamping manifold includes 4, 6 or 8 modular single acting spring return cylinders. The manifolds (2) are mounted at the side of the table, which enables the die to be loaded from the operating side towards a fixed stop. With a different support block heights can be adapted to the die clamping height. In case of mounting at the top this solution also avoid the die half from falling.

Ordering code: MLC-604/S

S = the height S in mm of the in between block. This has to be the die clamping height + 3 mm in view of the 8 mm stroke of the cylinders.

In case only the hydraulic clamping bar is needed, please order just MLC604, MLC906 or MLC1208.



### SELECTION CHART (FOLLOW UP)

EAS Model Number	Dimensions in mm																	
	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T
MLC 604/..	215	80	40	60	14	12	G 1/4"	20	13	17	30	17,5	40	30	45	8	*	42
MLC 906/..	305	80	40	60	14	12	G 1/4"	20	13	17	30	17,5	40	30	45	8	*	42
MLC 1208/..	395	80	40	60	14	12	G 1/4"	20	13	17	30	17,5	40	30	45	8	*	42

\* to be specified per application

# 2 CLAMPING SYSTEMS

## 2.4 T-SLOT CLAMPS SERIES MTC

Single acting and 350 bar

Capacity: 16, 28, 44 and 68 kN

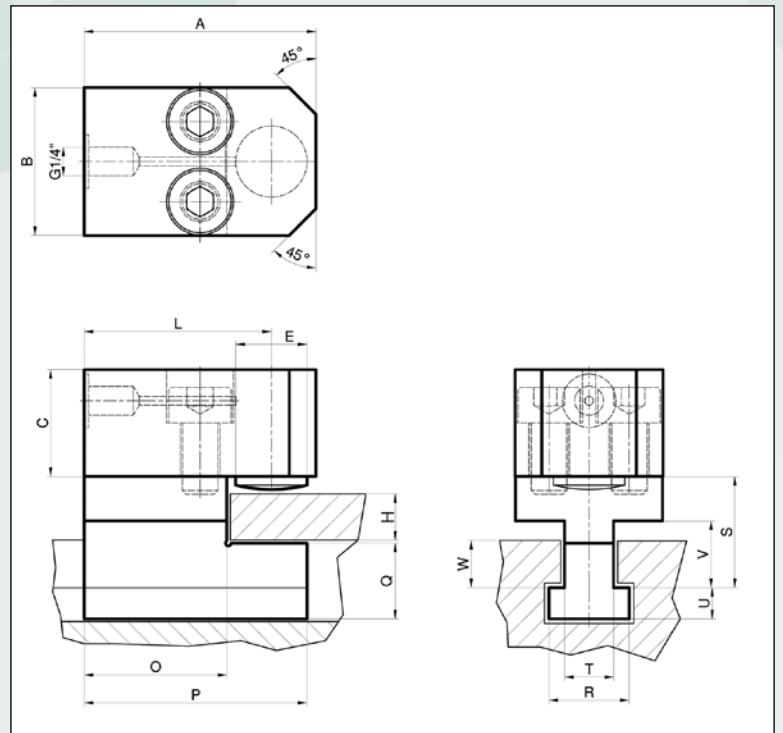
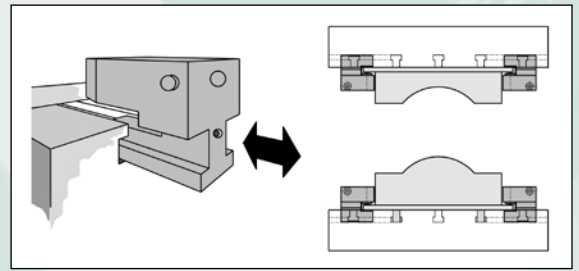
Working pressure: 350 bar

Single acting

Temperature range: 5°C till 200°C, with viton seals

### DESCRIPTION

Because of their compact sizes the MTC clamps are very suitable to place them manually into the T-slots and slide them against the die. As these clamps can be moved into the T-slots, they are very suitable for different sizes of dies. Also because of their large stroke range, different die heights can be easily clamped. A set screw in the back can be used to lock the clamp in the T-slot if required.



### Ordering code; MTC A-B-C

A= clamping force in kN , being 15, 30, 45 or 70.

B= dimensions of the T-slot, being 22, 28 or 36.

C= clamping height H being 25 or 30mm, others on request.

### Ordering Code Example:

MTC 15/22/25 is a 15 kN clamp with X height between 20 and 25 mm and for 22 mm T-slot.

In case only the hydraulic clamping cylinder is needed (without T stone part) please order just MTC15, MTC30, MTC45 or MTC70.

### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke (mm)	Oil capacity (cm <sup>3</sup> )	Dimensions in mm									
					A	B	C	E	G	L	O	P	Q	R
MTC 15/22/25	16,8	350	8	3,9	95	65	40	25	G1/4"	77	63	110	34	35
MTC 15/28/25	16,8	350	8	3,9	95	65	40	25	G1/4"	77	63	110	44	44
MTC 15/28/30	16,8	350	8	3,9	95	65	40	25	G1/4"	77	63	110	44	44
MTC 15/36/30	16,8	350	8	3,9	95	65	40	25	G1/4"	77	63	110	56	54
MTC 30/22/25	28	350	8	6,5	104	65	47	32	G1/4"	81	63	110	34	35
MTC 30/28/25	28	350	8	6,5	104	65	47	32	G1/4"	81	63	110	44	44
MTC 30/20/30	28	350	8	6,5	104	65	47	32	G1/4"	81	63	110	44	44
MTC 30/36/30	28	350	8	6,5	104	65	47	32	G1/4"	81	63	110	56	54
MTC 45/22/25	43,7	350	8	10,1	111	65	50	40	G1/4"	85	63	110	34	35
MTC 45/28/25	43,7	350	8	10,1	111	65	50	40	G1/4"	85	63	110	44	44
MTC 45/28/30	43,7	350	8	10,1	111	65	50	40	G1/4"	85	63	110	44	44
MTC 45/36/30	43,7	350	8	10,1	111	65	50	40	G1/4"	85	63	110	56	54
MTC 70/28/30	68,2	350	12	23,5	132	80	75	50	G1/4"	99	72	130	44	44
MTC 70/36/30	68,2	350	12	23,5	132	80	75	50	G1/4"	99	72	130	56	54





## 2.5 WEDGE CLAMP SERIES MDD WITH 20° PLUNGER END

Double acting , max 200 bar

Capacity: 60, 110, 200 and 400kN

Plunger with 20° angle

Working pressure: 200 bar (other on request)

Double acting

Temperature range: 5°C till 60°C



### DESCRIPTION

These double acting clamps feature a 20 degree angle at the end of the clamping plunger which require a 20 degree angle on the to be clamped tool. If the tool does not have the 20 degree angle the MOD series of the next page need to be selected.

**Ordering code: MDD -A-B-C-D-M** (see also page 19)

A = means the different sizes of clamps being 610, 1010, 2010 or 4010

B = nominal backplate height x 0,1 mm

C = mounting position of the bolts x 0,1 mm

D = mounting position of dowel pins x 0,1 mm

M = metric bolt size

**Ordering Code Example: MDD-610-350-200-400-M20**

M = metric MDD series, 610 means the 60 kN model, 350 means a backplate height of 35,0 mm, 200 means C = 20 mm, 400 means D = 40 mm and M20 means a mounting bolt of M20.

Cylinders come with mounting brackets for inductive sensors to determine the clamped and unclamped position. Inductive sensor need to be ordered extra under model number PSM12NO.

Cables: SCS5 straight connector 5 m length  
SCS15 straight connector 15 m length  
SCEL5 elbow connector 5 m length



Dimension on request

## 2 CLAMPING SYSTEMS

### 2.6 SELF LOCKING WEDGE CLAMP SERIES MOD

Double acting, max 200 bar

Capacity: 15, 30, 60, 110, 200, 400 and 1200 kN  
 Working pressure: 70 bar, retracting pressure 200 bar  
 Double acting  
 Temperature range: 5°C till 60°C



#### DESCRIPTION

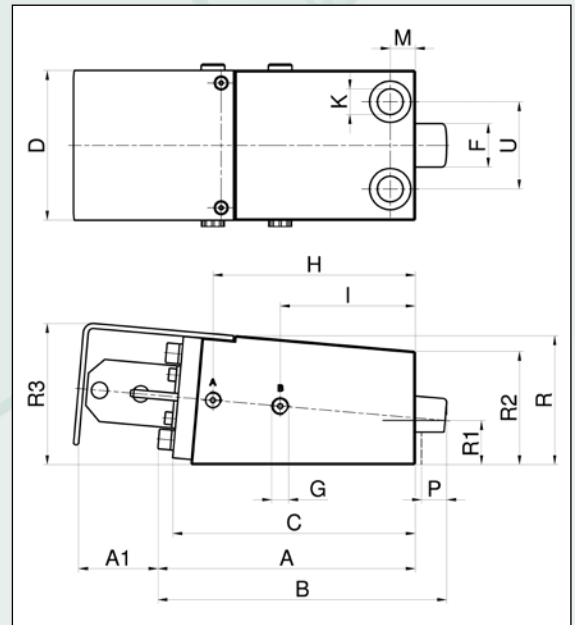
Ideal clamp for fully automated QDC systems. A typical clamping systems consists of 4 double acting cylinders mounted on the lower bed. Due to the 5 degree wedge angle, these cylinders are self locking even without hydraulic pressure, which is an important safety feature. For additional safety at QDC applications, continuous hydraulic pressure is recommended. On each clamp two inductive sensors can be installed to indicate the clamped and retracted position of the plunger. To be ordered as extra. Metric versions are available under the MOD series and Imperial versions with SAE oil connections are available under the series WOD.

MOD/WOD

#### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke (mm)	Retract pressure (bar)	Max flow (l/min.)	Back plate height B (mm)
MOD 150	15	70	15	200	2	17-27
MOD 250	30	70	30	200	4	17-27
MOD 510	60	70	35	200	6	25-40
MOD 1010	110	70	35	200	10	32-40
MOD 2010	200	70	35	200	10	36-40
MOD 4010	400	70	35	200	16	50-*
MOD 12030	1200	70	45	200	34	80-*

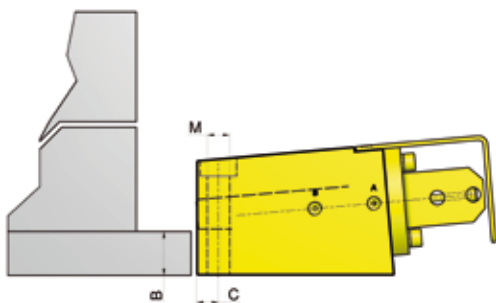
\*Please indicate your backplate height; higher backplate heights are possible with an extra filling plate.



#### SELECTION CHART (FOLLOW UP)

EAS Model Number	Dimensions in mm															
	A	A1	B	C	D	F	G	H	I	K	M	P	R	R2	R3	U
MOD 150	125	57	141	118	72	17,4	G1/4"	86	58	M12	12,5-35	13	X+41	X+35	X+50	35
MOD 250	157	65	187	147	105	25,4	G1/4"	123	79	M16	15,0-55	25	X+62	X+50	X+69	70
MOD 510	206	66	241	194	120	34,9	G1/4"	162	108	16-M20	20-70	30	X+78	X+65	X+89	70
MOD 1010	235	65	270	221	160	47,6	G3/4"	178	125	16-M24	20-90	30	X+104	X+92	X+114	105
MOD 2010	237	63	272	222	190	56	G3/4"	178	125	M24	25-80	30	X+110	X+92	X+123	140
MOD 4010	308	68	353	284	210	79,5	G3/4"	230	158	27-M36	30-85	40	X+158	X+136	X+172	140
MOD 12030							on request									

\*Please indicate your backplate height; higher backplate heights are possible with an extra filling plate.



**Ordering code:**

As these cylinders can be ordered for several backplate heights and the mounting screws at different locations the following ordering code is valid:

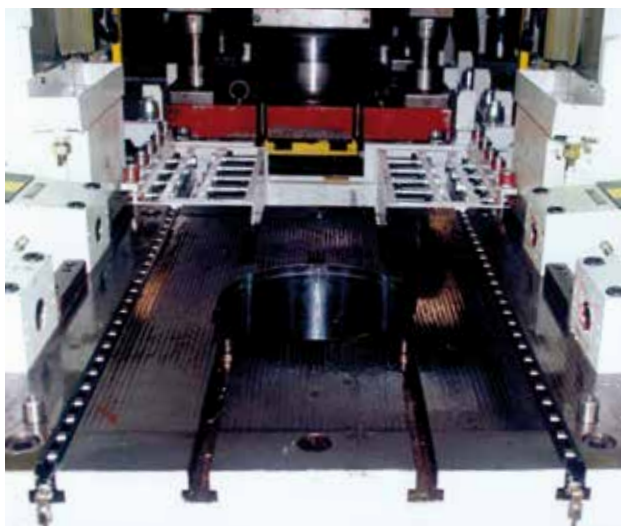
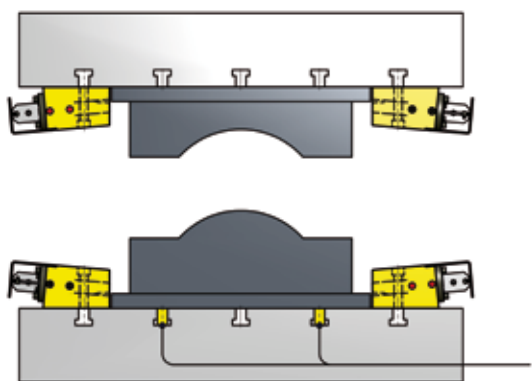
**MOD-A-B-C-D-M-V**

- M for metric version and W for the imperial version of the cylinder.
- A = means the different sizes of clamps, being 150, 250, 510, 1010, 2010, 4010 or 12030.
- B = nominal backplate height x 0,1 mm
- C = mounting position M of the bolts x 0,1 mm
- D = mounting position of dowel pins x 0,1 mm
- M = metric bolt size
- V = Viton seals

**Ordering Code Example:**

MOD -510-250-200-400-M20

M= metric MOD series , 510 means the 60 kN model, 250 means a back plate height of 25,0 mm, 200 means dimension C = 20,0 mm, 400 means dimension D = 40,0 mm and the M20 means a mounting bolt M20 and without inductive sensors.



SELECTION CHART INDUCTIVE SENSORS AND CABLES				
EAS Model Number	Thread	Specs	Detection distance	
PSM12NO Normally open	M12x1	10-30V, DC 150mA	3 mm	
SCEL5	90 degree elbow with 5 meter cable			
SCEL15				
SCSL5				Straight connector with 5 meter cable
SCSL15				



## 2 CLAMPING SYSTEMS

### 2.7 PULL CYLINDERS SERIES MPR

Double acting, max 350 bar

Capacity: 56, 91 and 143 kN

Working pressure: 350 bar

Double acting

Temperature range: 5°C till 60°C

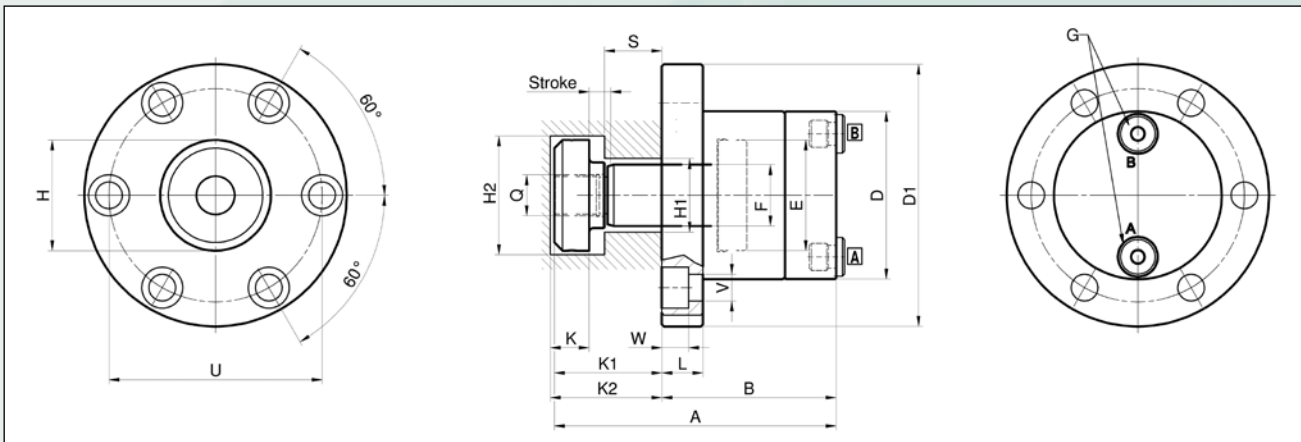
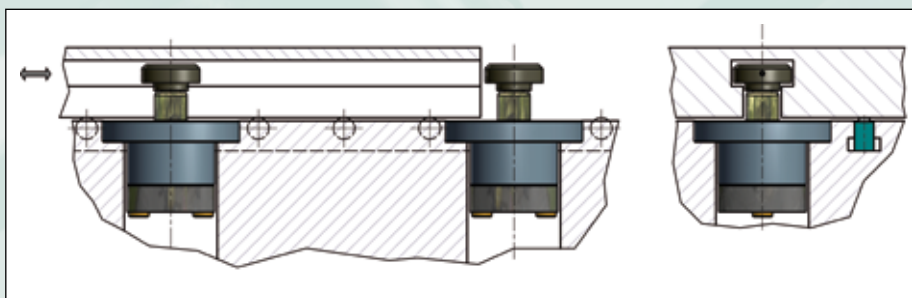
#### DESCRIPTION

The EAS pull cylinders are very suitable to clamp dies on press beds. In that case it is necessary to have T-slots on the dies. The die should be moved over the pullarm of the cylinder and also in the same direction of the clamps (see application drawing).

For Viton seals (max 200°C) add V behind the model number, like for example MPR 51-V

In case 2 sensors are required to determine the extended in the clamped position add suffix "P" behind the model number and order the sensors (5 m cable included).

MPR



#### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke (mm)	Oil capacity (cm <sup>3</sup> )	Oil retract capacity (cm <sup>3</sup> )	Max flow (l/min)
MPR 51	56	350	10	16	23	2,5
MPR 91	91	350	10	26	38	8,6
MPR 141	143	350	10	41	61	15

#### SELECTION CHART INDUCTIVE SENSORS

EAS Model Number	Thread	Specs	Detection distance
PSM8NOC Normally open	M8x1	10-36V, DC 100mA	2 mm

#### SELECTION CHART (FOLLOW UP)

EAS Model Number	Dimensions in mm																			
	A	B	D	D1	E	F	G	H	H1	H2	K <sup>1)</sup>	K1	K2	L	Q	S	U	V	W	X
MPR 51	137,5	85	82	128	54	30	G 1/4"	54	36	58	17	52,5	53	20	M20X1,5	51S*=26,5-34,5	104	13	13	20
MPR 91	169	100	104	160	70	40	G 1/4"	76	48	82	24	69	70	28	M30X1,5	91S*=36-44	130	17,5	17	26
MPR 141	201	115	126	192	90	50	G 3/8"	86	58	92	30	86	87	35	M36X1,5	141S*=47-55	156	21	21	31,5

## 2.8 SWING CLAMP CYLINDERS SERIES MSR

Double acting, max 350 bar

Capacity: 56, 91 and 143 kN

Working pressure: 350 bar

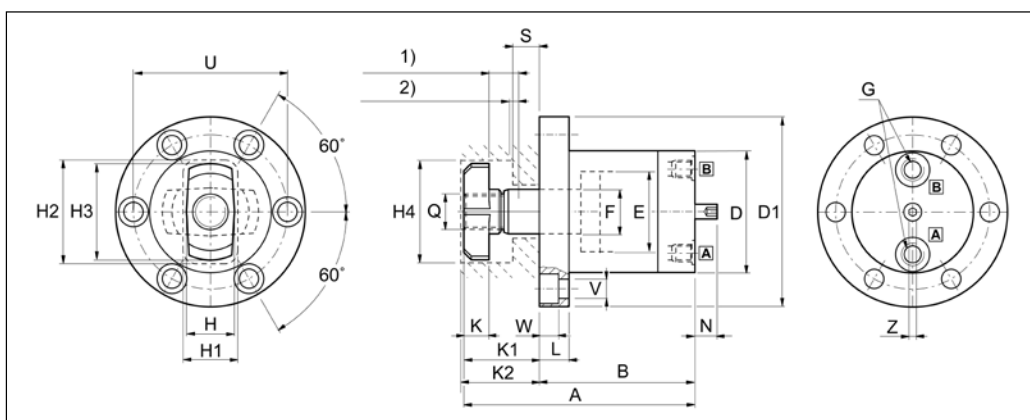
Double acting

Temperature range: 5°C till 60°C

### DESCRIPTION

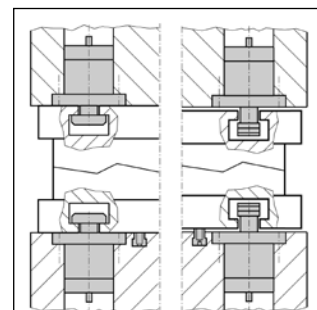
The EAS swing clamp arm swings 90 degrees and then clamps vertically. Ideal for mounting beneath the surface bed or bolster surface to allow unobstructed part or die loading and unloading. For the clamping arm it is required to mount flanges on the dies or to have T-slot openings.

In case two sensors are required to determine the extended and the clamped position add suffix 'P' behind the model number and order the inductive sensors and cables. For example MSR 51 P. These sensors are mounted at the bottom of the cylinders. Dimensions on request. For Viton seals (max 200°C) add V behind the model number like for example MSR-51-V. For flange mounted oil connections order model number with F. For example MSR-91-F. For F series dimensions on request.



### SELECTION CHART INDUCTIVE SENSOR AND CABLES

EAS Model Number	Thread	Specs	Detection distance
PSM8NO Normally open	M8X1	10-30V, DC 150mA	3 mm
SCEL5 SCEL15 SCSL5 SCSL15		90 degree elbow with 5 meter cable 90 degree elbow with 15 meter cable Straight connector with 5 meter cable Straight connector with 15 meter cable	



### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke* total (mm)	Stroke clamp (mm)	Oil capacity (cm3)	Oil retract capacity (cm3)	Max flow (l/min)
MSR 51	56	350	20	5	32	46	1,5
MSR 91	91	350	20	5	52	76	1,5
MSR 141	143	350	30	5	123	183	2,5

### SELECTION CHART (FOLLOW UP)

EAS Model Number	Dimensions in mm																							
	A	B	D	D1	E	F	G	H	H2	K	K1	K2	L	Q	S	U	V	W	Z	H4	X	N		
MSR 51	157	105	82	128	54	30	G1/4"	33	37	70	17	52	53	20	M20X1,5	51S*=16-21	104	13	13	6	65	70	20	15
MSR 91	178	115	104	160	70	40	G1/4"	40	46	68	24	63	66	28	M30X1,5	91S*=20-25	130	18	17	6	80	86	26	8
MSR 141	224	140	126	192	90	50	G1/4"	50	58	103	30	84	87	35	M36X1,5	141S*=25-30	156	21,5	21	8	95	103	32,5	10

## 2 CLAMPING SYSTEMS

### 2.9 THREE – POSITION SWING CYLINDERS SERIES MTR

Four oil connections, 350 bar

Capacity: 56, 91 and 143 kN

Working pressure: 350 bar

Four oil connections

Temperature range: 5°C till 60°C

Horizontal 90 degrees rotation in extended clamping arm position.

#### DESCRIPTION

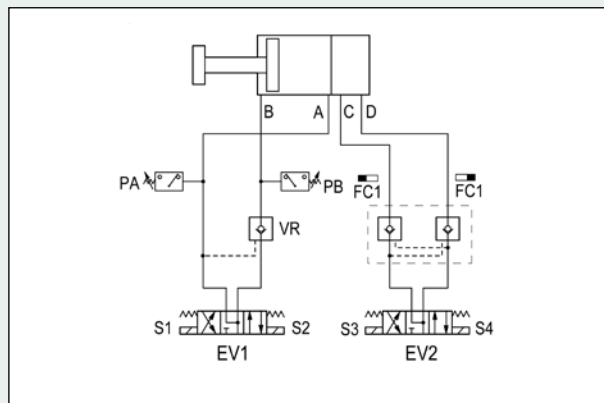
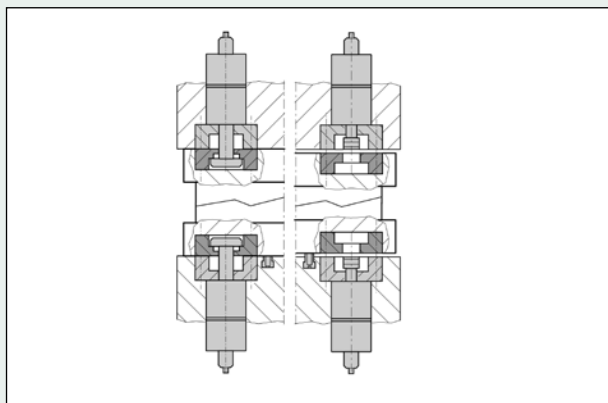
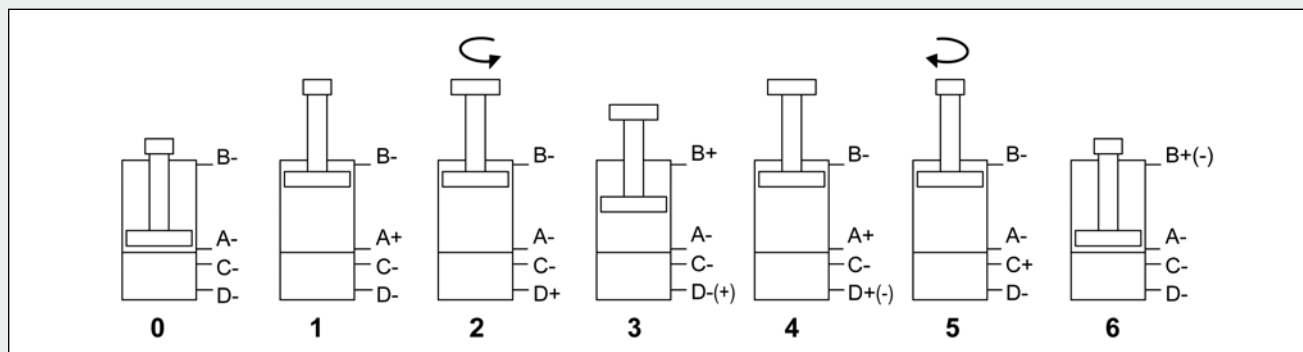
Double acting three position cylinders are designed to be integrated on machine tables and on moving bolsters. Due to the fact that the clamping arm is retracted completely and disappearing under the working table, the die load or unload surface becomes totally free.

Three position swing cylinders are particularly recommended when the application requires an integrated clamping solution on machine tables or when there is a narrow space and limited access.

Piston rotation is obtained through a mechanical device activated by two independent lines (ports C and D) while the straight action of the piston is provided by two other lines (ports A and B).

The clamping arm's position (clamped / unclamped) can be controlled by two proximity switches (to be ordered extra) while the straight stroke can be controlled by pressure switches. This cylinder guarantees a correct rotation of the arm avoiding inconveniences like jamming and cycle dephasing that would normally happen with similar products when the clamping arm bumps against the die.

For Viton seals (max 200°C) add V behind the model number. For example MTR-141-V.

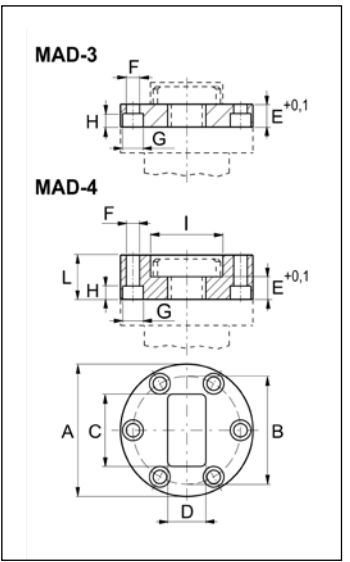
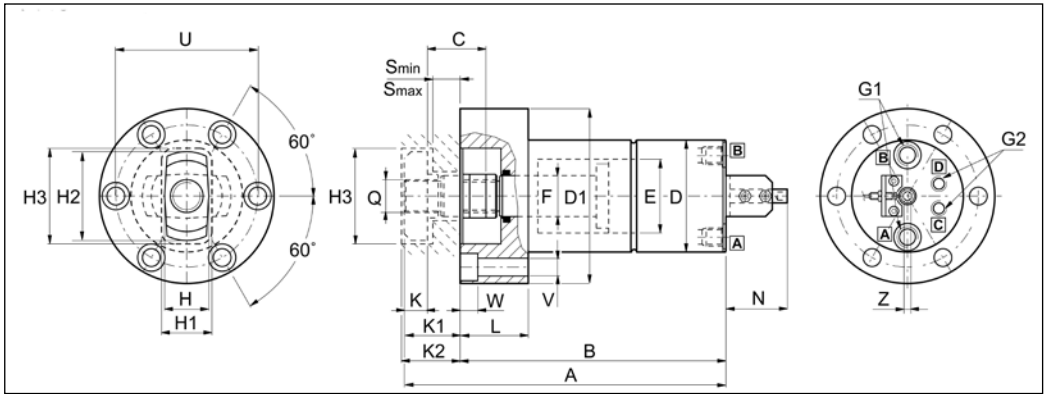






SELECTION CHART														
EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Stroke (mm)	Fclamp (kN)	Qretr (cm <sup>3</sup> )	Qext (cm <sup>3</sup> )	Max flow (l/min)	Dimensions in mm						
								A	B	C	D	D1	E	F
MTR 51	56	350	43	55,4	68,6	98	2	246	204	43	82	128	54	30
MTR 91	91	350	56	90,7	145,1	211	2	305	250	56	104	160	70	40
MTR 141	154	350	67	153,9	294,7	426	2	356	290	67	126	192	90	50

SELECTION CHART (FOLLOW UP)																		
EAS Model Number	Dimensions in mm																	
	G1	G2	H	H1	H2	H3	K	K1	K2	L	N	Q	S	U	V	W	Z	X
MTR 51	G 1/4"	G 1/8"	33	37	65	70	17	42	43	50	55	M20X1,5	19-22	104	13	13	6	20
MTR 91	G 3/8"	G 1/8"	40	46	80	86	24	55	56	61	55	M30X1,5	25-28	130	17,5	17	8	26
MTR 141	G 3/8"	G 1/4"	50	58	95	103	30	66	67	72	55	M36X1,5	30-33	156	22	21	8	33



SELECTION CHART INDUCTIVE SENSOR AND CABLES			
EAS Model Number	Thread	Specs	Detection distance
PSM12NC Normally closed	M12x1	10-30V, DC 150mA	3 mm
SCEL5	90 degree elbow with 5 meter cable		
SCEL15	90 degree elbow with 15 meter cable		
SCSL5	Straight connector with 5 meter cable		
SCSL15	Straight connector with 15 meter cable		

### FLANGES FOR DIE MOUNTING For cylinders MTR and MSR

SELECTION CHART											
EAS Model Number	Dimensions in mm										
	A	B	C	D	Emin	Emax	F	G	H	I	L
MAD 3.50	128	104	70	37	19	22	13	20	13	-	-
MAD 3.90	160	130	86	46	25	28	18	26	17	-	-
MAD 3.140	192	156	103	58	30	33	22	33	21	-	-
MAD 4.50	128	128	-	-	19	22	13	20	13	70	43
MAD 4.90	160	160	-	-	25	28	18	26	17	86	56
MAD 4.140	192	156	-	-	30	33	22	33	21	103	67

## 2 CLAMPING SYSTEMS

### 2.10 INTEGRATED DOUBLE ACTING WEDGE CLAMP SERIES HECS

Double acting and 140 bar

Capacity: 75, 150, 225, 300 and 400 kN  
 Working pressure: 140 bar  
 Double acting  
 Temperature range: -20°C till + 80 °C

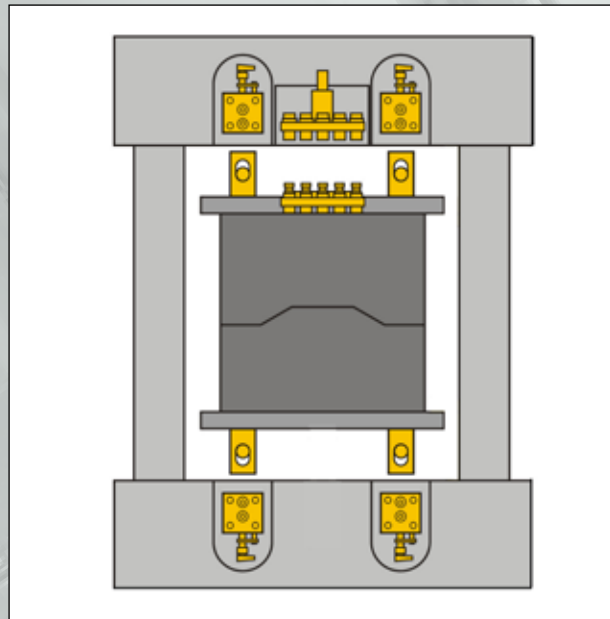
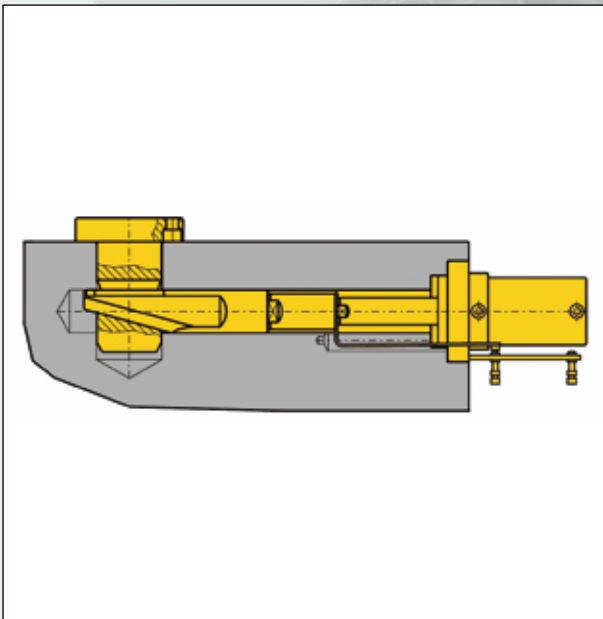
#### DESCRIPTION

This integrated hydraulic clamping system is mounted on the side of the press upper and lower bed, leaving the platen face completely free of obstructions. Depending on the press size the die is usually clamped using 2 or 4 clamps per platen. Each die would have the corresponding number of EEB clamping bolts mounted on each side of the die.

While these bolts are sticking out these systems are usually only used at the upper bed side of the press. Clamping is achieved when the cylinder moves the wedge on the end of the plunger into the matching wedge shaped slot in the clamping bolt.

This system can only be applied on new presses where the platens can be easily modified to accept the system. Information about mounting holes is available from your EAS source.

For more detailed information ask EAS.



#### SELECTION CHART

EAS Model Number	Clamping force (kN)	Operating pressure (bar)	Outside diameter (mm)	Cylinder length (mm)	Related bolt number	Bolt diameter (mm)
HECS 40	75	140	88	108	EEB 40/41	40
HECS 70	150	140	120	145	EEB 70/71	70
HECS 95	225	140	165	233	EEB 95	95
HECS 120	300	140	210	245	EEB 120	120
HECS 135	400	140	210	245	EEB 135	135

For more detailed information ask EAS.



## 2.11 SINGLE ACTING HYDRAULIC TRAVELLING DIE CLAMP

### 2.11.1 ELECTRIC POWERED ETDCE WITH ECA/MHC CYLINDER

Single acting hydraulic clamping cylinder,  
electric powered into the T-slot.  
Hydraulic pressures 350 bar

Available with ECA or MCH hollow ram pull cylinders  
Clamping capacity range 40, 60 or 100 kN  
Travel distance: 400 towards 1200 mm  
Travel speed: 100-150 mm/sec  
Temperature range: 5°C till 60°C



ETDCE with MHC hollow ram cylinder

#### DESCRIPTION

Travelling die clamps are used for automatic clamping applications on the upper bed of mainly large presses. The single acting hydraulic clamping cylinder is mounted to a chain which travels into the T-slot of the press upper bed. This chain is in this case driven by an electric motor. The hydraulic clamp is normally retracted in the so called park position and is controlled by a sensor. When the cylinder travels into the T-slot and reaches the to be clamped die, another sensor will indicate that the clamp has reached his position and the travel drive switches off. Hydraulic hose and sensor cable are travelling inside the chain with the cylinder in the T-slot. No standardization of the back plate die required. The rigid construction is to withstand vibrations and shocks from the press operation.

Ordering code example: ETDCE 10-50-600-36

ETDCE = EAS Travelling Die Clamp Electric

1 = clamping force 4 = 40 kN, 6 = 60 kN and 10 is 100 kN

2 = clamping height H in mm

3 = travelling stroke in mm

4 = T-slot size

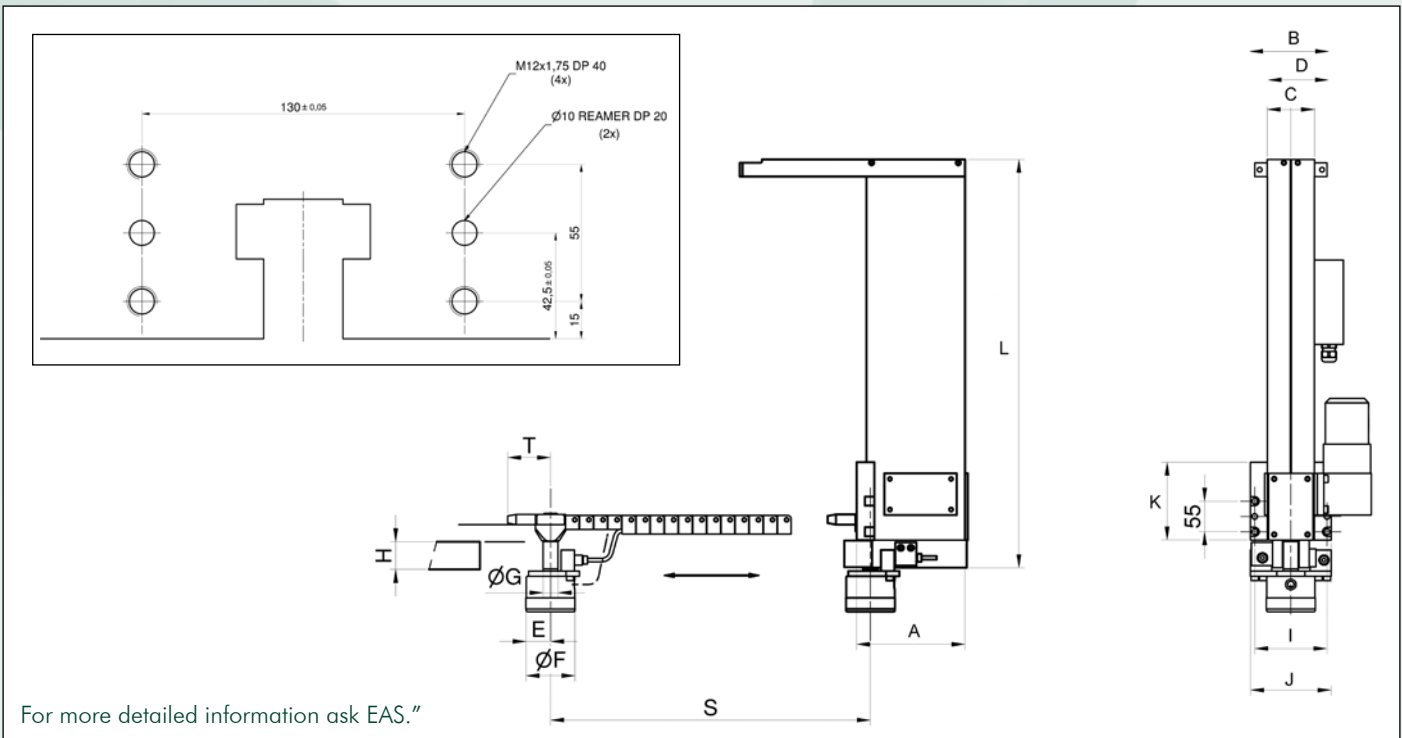
#### Ordering code example:

ETDCE 10-50-600-36, this is an electric powered traveling die clamp with a 100 kN hollow clamp cylinder type ECA 100 with 50 mm clamping height and a 600 mm travelling stroke for a 36 mm DIN 650 T-slot.



## 2 CLAMPING SYSTEMS

ECA



### SELECTION CHART

EAS Model Number	Air pressure (bar)	Hydraulic pressure (bar)	Moving speed (mm/sec)	Dimensions in mm											
				A	B	C	D	E	F	G	H	I	J	K	L
ETDCE-4	4	250	100-150	195	187	85	94,5	59	73	25	*	130	145	140	S/2+435
ETDCE-6	4	250	100-150	195	187	85	94,5	49	88	30	*	130	145	140	S/2+435
ETDCE-10	4	250	100-150	195	187	85	94,5	42	108	40	*	130	145	140	S/2+435



## 2.11.2 ELECTRIC POWERED ETDCE WITH MTC CYLINDER

Single acting hydraulic clamping cylinder, electric powered into the T-slot.

Hydraulic pressure: 350 bar

Available with single acting MTC series

T-slot clamps

Clamping capacity range: 45 kN and 68 kN

Travel distance: 400 till 1200 mm

Travel speed: 100-150 mm/sec

Temperature range: 5°C till 60°C

Ordering code: ETDCE-1-2-3-4

ETDCE = EAS travelling Die Clamp Electric

1 = clamping force 45 = 45 kN and 70 = 70 kN

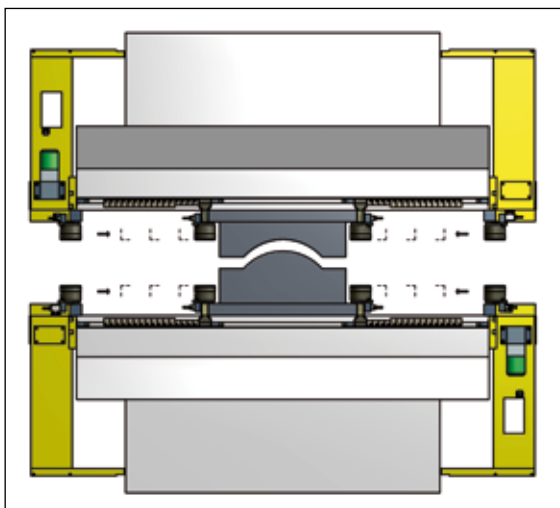
2 = clamping height H in mm

3 = travelling stroke in mm

4 = T-slot size

Ordering code example:

ETDCE44-60-700-28 is an electric powered travelling die clamp with a 45 kN MTC cylinder with 60 mm clamping height and a 700 mm traveling stroke for a 28 mm T-slot.



ETDCE with MTC cylinder

For MTC cilinder see page 18

## 2 CLAMPING SYSTEMS

### 2.12 DOUBLE ACTING HYDRAULIC DOUBLE T-SLOT CLAMP, SERIES ESCH

Double acting, 350 bar

For T-slot DIN 650, size 22 and size 28  
 Lifting capacity: 12,5 kN till 60,3 kN  
 Working pressure: 350 bar  
 Temperature range: 5°C till 60°C  
 Special hardened first roller with protection

#### DESCRIPTION

Double acting T-slot clamps are used on the press table to lift, roll and clamp the die on the bolster table. These products are mounted easily into the standard T-slot of the bolster and on the die they also fit T-slots. By actuating the lifting port the upper roller part lifts the die from the bolster table and the die can roll over the rollers in and out the press. By actuating the upper port the plungers go down and the bar clamps the die onto the bolster table. The first rollers are specially hardened and protected against the first 'contact' with the die.

Available in different length as the products can be connected to each other and this product is available for 2 DIN 650 T-slot sizes, 22 and 28 mm.

For only clamping the die against the slide with a similar double T-slot clamps ask your EAS contact as these are also available on special request.

#### Ordering code: ESCH-A-B

A = the T-slot size: 22 and 28

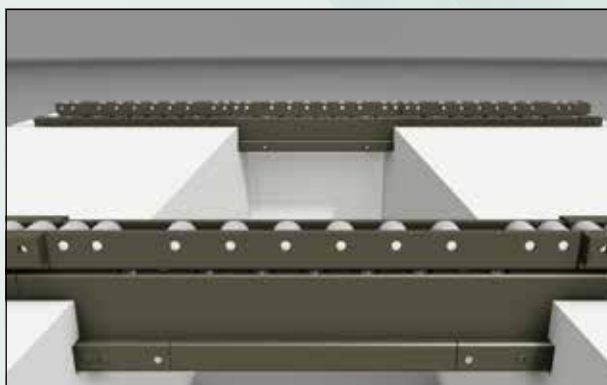
B = length of the clamp

#### Remark

The double T-slot clamp is a very interesting combination of clamping and die lifting combined in one product.

Due to the applications of this product EASchangesystems does not deliver this product as a standard component but wants to discuss and review first with you your application.

The usage of this product without consulting EASchangesystems may result in damage of the first rollers due to misalignments. If smaller dies are used then the length of this product other issues may appear. In case of scrap holes please also request us for the right solutions.



# IDEAS COME FROM EAS



**Stamping press equipped with movable pre rollers, double T-slot clamps on bolster and slide and chain push/pull device.**

**Swivel pre rollers which are also movable along the press bed.**



**Our application engineers found the right solution together with the customer.**

**The T-slot on the slide are equipped with double T-slot clamps without rollers.**





## 2 CLAMPING SYSTEMS

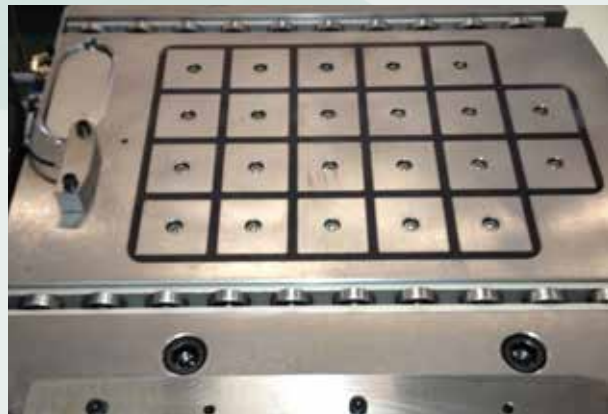
### 2.13 PERMANENT ELECTRIC MAGNETIC CLAMPING SYSTEMS SERIES PRESSMAG SP AND HP

The primary advantage of magnetic clamping is that it avoids the need for standardized back plates.

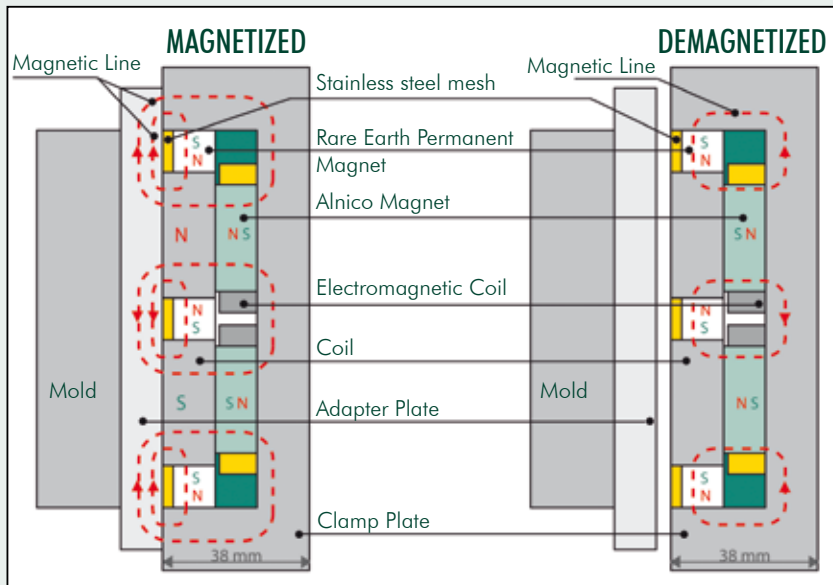
Our Pressmag systems are EASy to install and EASy to operate. No modifications to the press are required as the system is mounted with bolts to existing T-slots or tapped holes. One operator can operate the die clamping in a safe way, standing outside the press.

EAS Pressmags are safe as the magnetic force stays on, even when an electrical break down takes place. After magnetizing the plates the clamping force stays always in place until the moment of demagnetizing.

EAS Pressmags do not magnetize the entire die as the magnetic flux penetrates the die only 20 mm. There for the die face and the to be stamped part will not be magnetized, allowing also scap removal. EAS offers two different systems the Pressmag SP 100 MM and the Pressmag HP.



Bolster plate with side guiding die stop and air die lifters. Pressmag SP100 system with resin sealing.

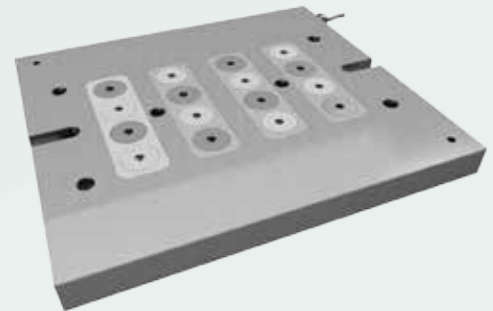


#### PRESSMAG SP100MM

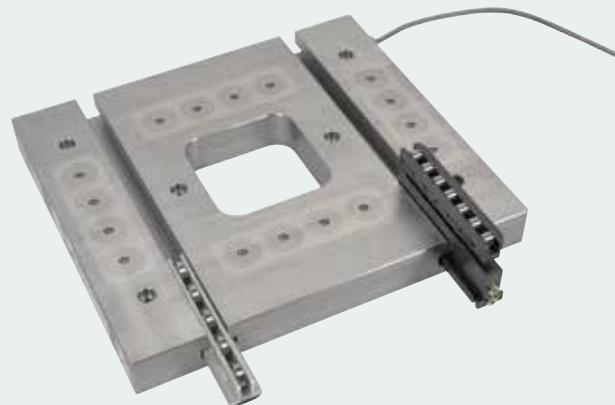
The Pressmag SP system is based on 47x 47 mm square invertible ALNICO magnets, surrounded by an isolated coil. On top is a round pole while each square is surrounded by not invertible permanent rare earth magnets. Clamping of the die is done for an unlimited time and without electrical energy nor generating heat. Another electric pulse will demagnetize the system, releasing the die.

Pressmag SP 100MM features:

- Small square/round poles, resulting in high forces within limited areas.
- Stainless steel mesh metal to metal seal for cleaner and longer life.
- Standard for 100°C ( 212° F)
- Plate thickness 38 mm, with T-slots it will be more.
- Force per pole 2,2kN.



Pressmag SP100MM slide plate with optional T-slots for mechanical locking devices.

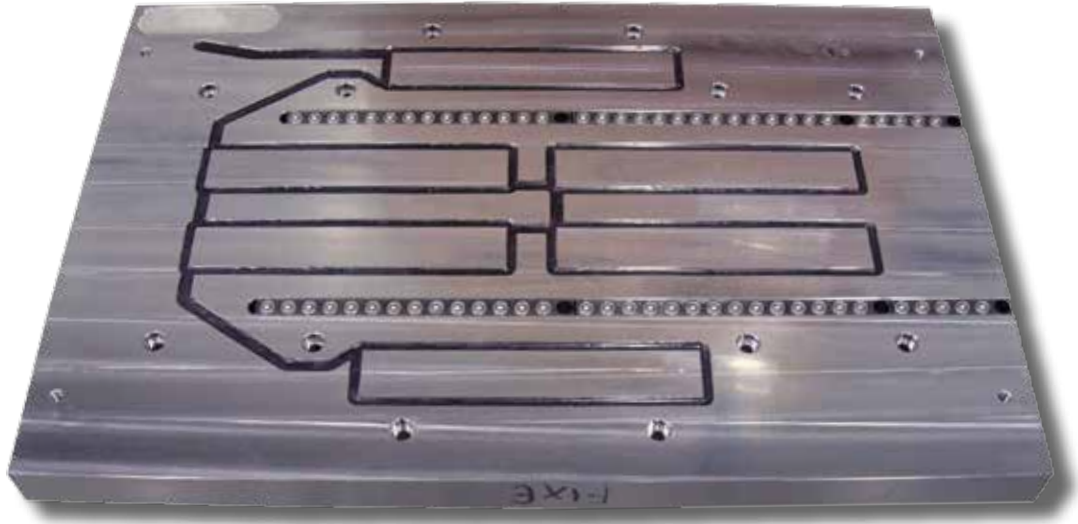


Bolster plate with optional T-slots.

IDEAS  
COME FROM  
EAS

SP





Large Pressmag HP application

## PRESSMAG HP

The Pressmag HP system is a compensated system, meaning that NOT each pole is acting like a north or a south pole as the SP system but the long poles are acting as the north poles and the frame plate as the south pole.

To magnetize, the electric current in the coils reverse the polarity of the magnets. The magnetic fields generated by the magnets are oriented to the polar face of the chuck, which becomes active and the die is clamped.

A new electric current reverse the polarity of the magnets and turns off the system and demag is completed and the die is released.

The long poles generate higher clamping forces while the magnetic flux is also working if only a part of the pole is covered by the die.

These systems are recommended for larger dies and higher forces.

Pressmag HP features:

- Long poles with high flux concentration, even if poles are partly covered.
- Standard up to 100°C
- Plate thickness 55 mm
- Force per pole 25 kN



Slide plate with Pressmag SP100MM groups.



Group of presses equipped with Pressmag SP100 as well as guiding, air operated die lifters and pre rollers from one source, EASchangesystems.

# 3 DIE LIFTERS

## INTRODUCTION

For a simple and quick movement of the dies on the press bed, EAS offers a comprehensive product portfolio of so called die lifters. When dies are weighing more than 500 kg the conventional way of changing dies becomes heavy, protracted and often dangerous. Long downtimes result in unproductive manufacturing. Die lifters make a die change easier and above all quick which increases the productivity.

These die lifters are spring, hydraulic or air operated lifting bars. On these bars are either balls or rollers mounted over which the die can be simply moved into its position or outside the press. These die lifters are fitting the standard DIN 650

metric T-slot dimensions as well as rectangular U shape slots and for the inch sizes of T-slot EAS offers the DL series. Normally the die lifters are just below the press bed surface and the die cannot be moved but after be activated by either a spring, by hydraulic pressure or by air pressure the die lifter is "lifted" a few mm above the press bed surface, clearing the die from the bed, which makes it then easy and simple to move the die.

MB

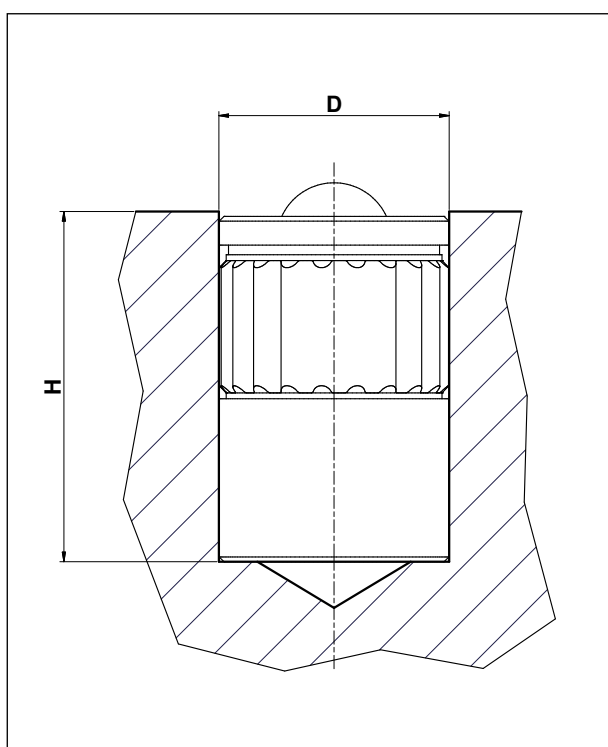
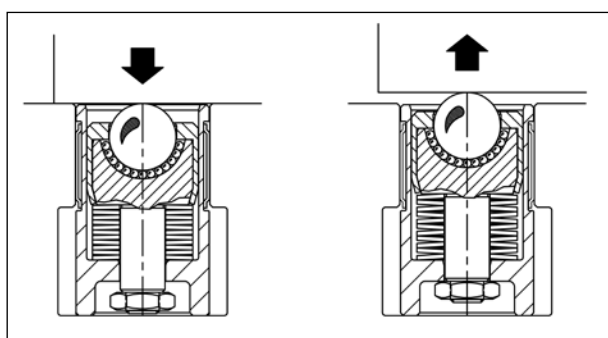


## 3.1 SINGLE SPRING LOADED DIE LIFTER SERIES SMB

Available from 20kg till 100kg lifting capacity



Simple spring loaded die lifters are very suitable for small and mid size dies. They do not require any power source. By closing and clamping the die the clamping elements overcome the spring force and clamp the die onto the press table. When the die clamps are released, the spring loaded balls lift the die back into its original position where it can be moved. The MB series can be mounted individual.



SELECTION CHART					
EAS Model Number	Lifting (kg)	Capacity (kN)	Dimensions in mm		
			Dia.	Height	Stroke
SMB 18	20	0,2	20	28,5	2,5
SMB 22	40	0,4	24	36	3
SMB 28	60	0,6	30	47	4
SMB 36	100	1	36	59	4,5

To build in SMB series please manufacture holes according following dimensions:

SELECTION CHART		
EAS Model Number	Dimensions in mm	
	D	H
SMB 18	20 Hg	28,5
SMB 22	24 Hg	36
SMB 28	30 Hg	47
SMB 36	40 Hg	59



## 3.2 SPRING LOADED DIE LIFTERS SERIES EMB



As the single units these die lifter bars do not require a power source to be actuated as they are activated by the spring package underneath the ball. Balls allow more movement of the die than rollers. Because balls do have a point connection with the die, the to be lifted load is smaller than with comparable rollers with a line connection. Load distribution over several balls allows a smooth movement and it makes it possible to move the die with little effort in any direction.



### SELECTION CHART

EAS Model Number	Qty of balls	Lifting (kg)	Capacity (kN)	Dimensions in mm				
				Length	T-slot size	Height	Width	Stroke
EMB 18-4	4	80	0,8	100	18	29,8	17,8	2,3
EMB 18-6	6	120	1,2	140	18	29,8	17,8	2,3
EMB 18-8	8	160	1,6	180	18	29,8	17,8	2,3
EMB 18-10	10	200	2	220	18	29,8	17,8	2,3
EMB 18-12	12	240	2,4	260	18	29,8	17,8	2,3
EMB 18-14	14	280	2,8	300	18	29,8	17,8	2,3
EMB 18-16	16	320	3,2	340	18	29,8	17,8	2,3
EMB 22-4	4	160	1,6	150	22	37,8	21,8	3,5
EMB 22-6	6	240	2,4	210	22	37,8	21,8	3,5
EMB 22-8	8	320	3,2	270	22	37,8	21,8	3,5
EMB 22-10	10	400	4	330	22	37,8	21,8	3,5
EMB 22-12	12	480	4,8	390	22	37,8	21,8	3,5
EMB 22-14	14	560	5,6	450	22	37,8	21,8	3,5
EMB 22-16	16	640	6,4	510	22	37,8	21,8	3,5
EMB 22-18	18	720	7,2	570	22	37,8	21,8	3,5
EMB 22-20	20	800	8,0	630	22	37,8	21,8	3,5
EMB 28-4	4	240	2,4	210	28	47,8	27,8	4,0
EMB 28-6	6	360	3,6	300	28	47,8	27,8	4,0
EMB 28-8	8	480	4,8	390	28	47,8	27,8	4,0
EMB 28-10	10	600	6	480	28	47,8	27,8	4,0
EMB 28-12	12	720	7,2	570	28	47,8	27,8	4,0
EMB 28-14	14	840	8,4	660	28	47,8	27,8	4,0
EMB 28-20	20	1200	12,0	930	28	47,8	27,8	4,0

\* DIN 650

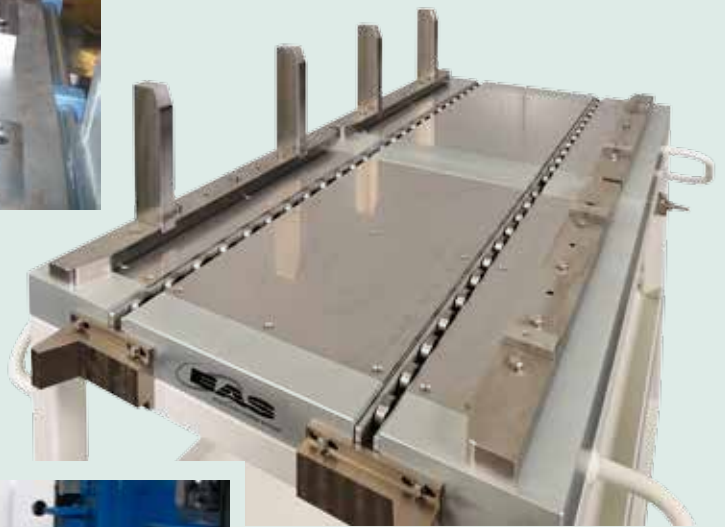


# IDEAS COME FROM EAS



**Magnetic clamping system in combination with air operated die lifters with rollers and guidings on the side.**

**Die change car equipped with air operated die lifters with rollers and side guidings.**



**Bolster with air operated die lifters, pre rollers, ECA cylinders and parking stations.**

**Bolster equipped with die lifters, pre rollers, MTC clamping cylinders and parking stations.**

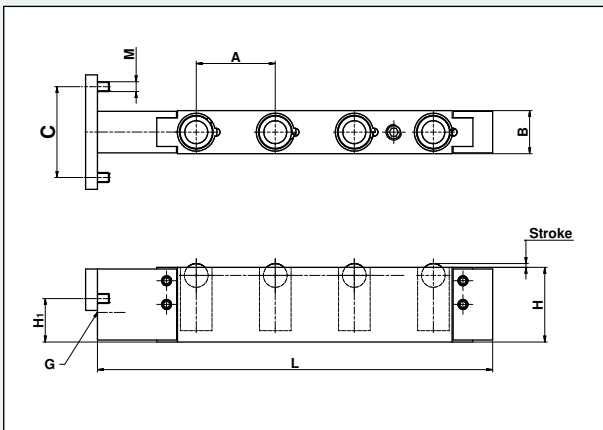


# 3 DIE LIFTERS



## 3.3 HYDRAULIC OPERATED BALL DIE LIFTERS, SERIES EHB

Max. hydraulic pressure is 150 bar



### DESCRIPTION

Hydraulic die lifters are used for heavy dies. The EAS hydraulic operated die lifters are available with balls( EHB series) and with rollers(EHR series).

With the hydraulic ball is each ball working as a hydraulic piston. When the balls are pressurized the balls make contact with the die and lift the die above the table. When the die is in position the balls are depressurized to allow the lowering of the die on the bolster table.

Balls have the advantage that the die can be positioned in all directions while a roller only allow this in one direction.

Available for T-slots or U size openings for 22 and 28 mm. Lifting stroke is 2 mm for size 22 and 3 mm for size 28. Length up to 1080 mm are made out of one piece. Longer die lifters are connected with each other.

For Imperial T-slots size 1 inch, the EHB-1 series is available which is the same as the EHB 22 series but with an oil connection of # 4 SAE.

For example EHB 1-5 has a lifting capacity of 4,7 kN and a length of 240 mm = 9.45 inch.

### SELECTION CHART

EAS Model Number	Dimensions in mm							Lifting stroke mm
	A	B	C	G	H	H1	M	
EHB 22	40	21,8	46	G 1/4"	37,8	22	M5x 12	2
EHB 28	45	27,8	50	G 1/4"	47,8	39	M6x 12	3

EHB


**SELECTION CHART**

EAS Model Number	Amount of balls	lifting kg	capacity kN	length L mm
EHB 22-4	4	380	3,8	200
EHB 22-5	5	470	4,7	240
EHB 22-6	6	570	5,7	280
EHB 22-7	7	660	6,6	320
EHB 22-8	8	760	7,6	360
EHB 22-9	9	840	8,5	400
EHB 22-10	10	940	9,4	440
EHB 22-11	11	1040	10,4	480
EHB 22-12	12	1140	11,4	520
EHB 22-13	13	1230	12,3	560
EHB 22-14	14	1320	13,2	600
EHB 22-15	15	1410	14,1	640
EHB 22-16	16	1500	15,0	680
EHB 22-17	17	1600	16,0	720
EHB 22-18	18	1700	17,0	760
EHB 22-19	19	1790	17,9	800
EHB 22-20	20	1880	18,8	840
EHB 22-21	21	1980	19,8	880
EHB 22-22	22	2080	20,8	920
EHB 22-23	23	2170	21,7	960
EHB 22-25	25	2370	23,7	1040
EHB 22-27	27	2560	25,6	1123
EHB 22-32	32	3040	30,4	1323

**SELECTION CHART**

EAS Model Number	Amount of balls	lifting kg	capacity kN	length L mm
EHB 28-4	4	530	5,3	220
EHB 28-5	5	660	6,6	265
EHB 28-6	6	790	7,9	310
EHB 28-7	7	950	9,2	355
EHB 28-8	8	1060	10,6	400
EHB 28-9	9	1170	11,7	445
EHB 28-10	10	1320	13,2	490
EHB 28-11	11	1450	14,5	535
EHB 28-12	12	1580	15,8	580
EHB 28-13	13	1710	17,1	625
EHB 28-14	14	1840	18,4	670
EHB 28-15	15	1980	19,8	715
EHB 28-16	16	2120	21,2	760
EHB 28-17	17	2240	22,4	805
EHB 28-18	18	2370	23,7	850
EHB 28-19	19	2490	24,9	895
EHB 28-20	20	2630	26,3	940
EHB 28-21	21	2770	27,7	985
EHB 28-22	22	2900	29,0	1040
EHB 28-27	27	3120	21,2	1258
EHB 28-30	30	3510	35,1	1393

## 3 DIE LIFTERS

### 3.4 HYDRAULIC OPERATED ROLLER DIE LIFTERS, SERIES EHR

EHR



Max. hydraulic pressure is 150 bar.

#### DESCRIPTION

With the die lifters equipped with rollers one can lift more weight as the rollers can carry more weight than a ball. With these rollers one can only move the die in the direction of the die lifter and not, as with balls, in all directions.

The total die lifter bar is being hydraulically lifted by hydraulic pistons under the bar.

Available for T-slots and U shape openings for 22, 28 and 36 mm as well as for 3/4" and 1" Length up till 1060 mm are made out of one bar and if a longer die lifter is required the bars are connected with each other.

#### Ordering code: EHR A-B

EHR = EAS Hydraulic roller

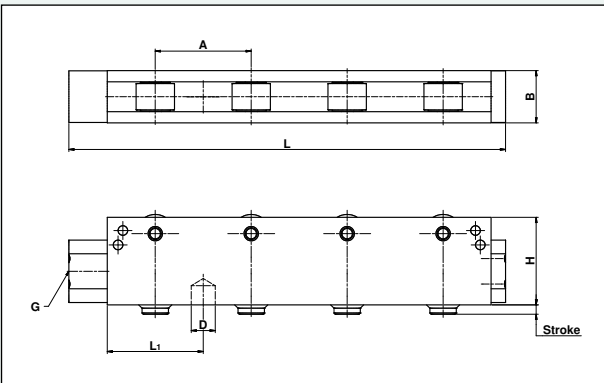
A= size of the T-slot dimensions 22=22 mm, 28=28 mm and 35=36 mm

B= amount of rollers

#### Ordering code example: EHR 36-5

This is a hydraulic roller die lifter for 36 mm T-slot with 5 rollers. From the selection chart you can see that the length is 480 mm and the lifting capacity 21,2 kN.

The total lifting capacity can be calculated with the amount of die lifters, for example 3 rows of lifter with a length of 480 mm be able to lift  $3 \times 21,2 = 63,6$  kN or 6360 kg.



#### SELECTION CHART

EAS Model Number	Dimensions in mm						Lifting stroke mm
	A	B	D	G	H	L1	
EHR 22	40	21,8	Ø10x8	G 1/8"	37,7	40	3,8
EHR 28	50	27,8	Ø10x8	G 1/4"	47,7	50	4,3
EHR 36	90	35,8	Ø14x11	G 1/4"	60,7	90	4,3



## SELECTION CHART

EAS Model Number	Amount of rollers	lifting kg	capacity kN	length L mm
EHR 22-4	4	760	7,6	182
EHR 22-5	5	950	9,5	222
EHR 22-6	6	1140	11,4	262
EHR 22-7	7	1330	13,3	302
EHR 22-8	8	1520	12,2	342
EHR 22-9	9	1710	17,1	382
EHR 22-10	10	1900	19,0	422
EHR 22-11	11	2090	20,9	462
EHR 22-12	12	2280	22,8	502
EHR 22-13	13	2470	24,7	542
EHR 22-14	14	2660	26,6	582
EHR 22-15	15	2850	28,5	622
EHR 22-16	16	3040	30,4	662
EHR 22-17	17	3230	32,3	702
EHR 22-18	18	3420	34,2	742
EHR 22-19	19	3610	36,1	782
EHR 22-20	20	3800	38,0	822
EHR 22-21	21	3990	39,9	862
EHR 22-22	22	4180	41,8	902
EHR 22-23	23	4370	43,7	942
EHR 22-24	24	4560	45,6	982
EHR 22-25	25	4750	47,5	1022
EHR 22-26	26	4940	49,4	1062
EHR 22-32	32	6080	60,8	1302
EHR 28-4	4	1056	10,5	230
EHR 28-5	5	1320	13,2	280
EHR 28-6	6	1584	15,8	330
EHR 28-7	7	1848	18,5	380
EHR 28-8	8	2112	21,1	430
EHR 28-9	9	2376	23,7	480
EHR 28-10	10	2640	26,4	530
EHR 28-11	11	2904	29,4	580
EHR 28-12	12	3168	31,7	630
EHR 28-13	13	3432	34,3	680
EHR 28-14	14	3696	36,9	730
EHR 28-15	15	3960	39,6	780
EHR 28-16	16	4224	42,2	830
EHR 28-17	17	4488	44,9	880
EHR 28-18	18	4752	47,5	930
EHR 28-19	19	5016	50,2	980
EHR 28-20	20	5280	52,8	1030
EHR 28-21	21	5544	55,4	1080
EHR 28-24	24	6360	63,6	1230
EHR 28-27	27	7160	71,6	1380

## SELECTION CHART

EAS Model Number	Amount of rollers	lifting kg	capacity kN	length L mm
EHR 36-4	4	1700	17,0	390
EHR 36-5	5	2125	21,2	480
EHR 36-6	6	2550	25,5	570
EHR 36-7	7	2975	29,7	660
EHR 36-8	8	3400	34,0	750
EHR 36-9	9	3825	38,2	840
EHR 36-10	10	4250	42,5	930
EHR 36-11	11	4675	46,7	1020
EHR 36-12	12	5100	51,0	1110
EHR 36-14	14	5950	59,5	1290
EHR 36-16	16	6800	68,0	1470
EHR 36-18	18	7650	76,5	1650



## 3.5 HYDRAULIC OPERATED ROLLER DIE LIFTER, IMPERIAL SIZES, SERIES DL



### Features:

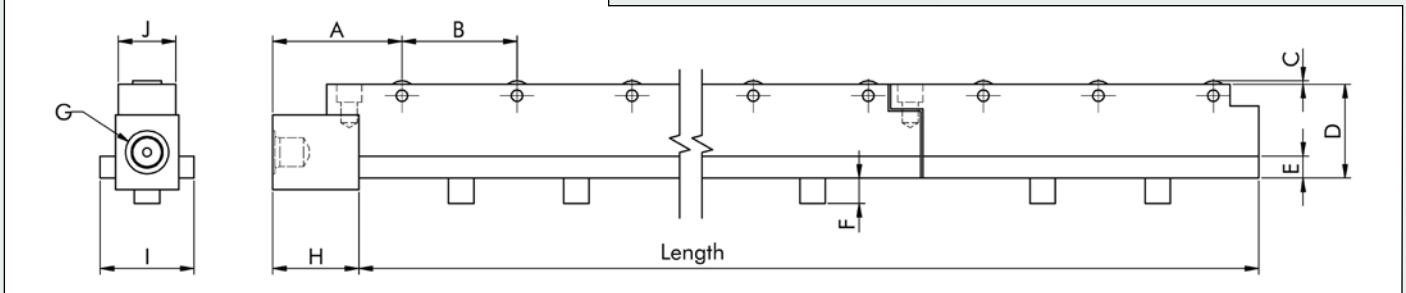
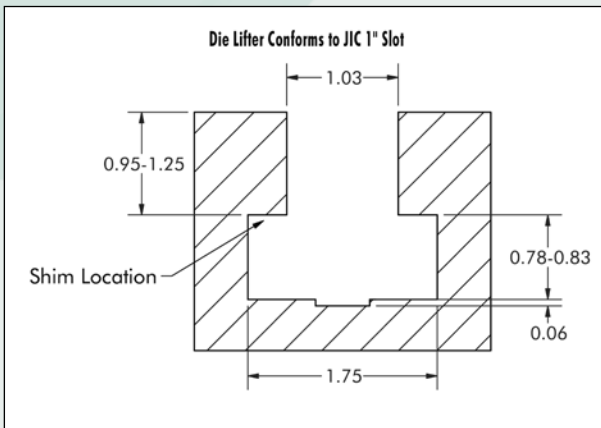
- T – shape design, enables die lifter to fit in a standard 1 inch /JIC slot
- Steel rollers to minimize wear to the die and enables easier die movement
- Includes die lifter retainers latch the die lifter into the T-slot for more safety
- Die lifter stroke is .44 inches or 11 mm

### Specifications:

- Operating pressure is 5000 psi or 350 bar
- Seal material is Urethen and optional is Viton.

Die lifters have a T shaped body, equipped with rollers on the top and a series of hydraulic cylinders along the bottom. When pressure is to the lifters, plungers extend to raise the unit so that the rollers make contact with the die above it.

The die can then freely roll along the length of the die lifter. When the die is in position, the die lifter is de pressurized to allow the unit to lower the die, and then clear the dies bottom surface.



### SELECTION CHART

EAS Model Number	Lifting capacity LBS	Length L inches	Oil volume in <sup>3</sup>	Dimensions in inches									
				A	B	C	D	E	F	G	H	I	J
DL-6	1100	6"	0,25	2,25"	2,0"	0,06"	1,63"	0,38"	0,44"	SAE 4.437-20UNF	1,5"	1,63"	1,0"
DL-12	2800	12"	0,55	2,25"	2,0"	0,06"	1,63"	0,38"	0,44"	SAE 4.437-20UNF	1,5"	1,63"	1,0"
DL-18	3900	18"	0,8	2,25"	2,0"	0,06"	1,63"	0,38"	0,44"	SAE 4.437-20UNF	1,5"	1,63"	1,0"
DL-24	5600	24"	1,1	2,25"	2,0"	0,06"	1,63"	0,38"	0,44"	SAE 4.437-20UNF	1,5"	1,63"	1,0"
DL-30	6700	30"	1,3	2,25"	2,0"	0,06"	1,63"	0,38"	0,44"	SAE 4.437-20UNF	1,5"	1,63"	1,0"

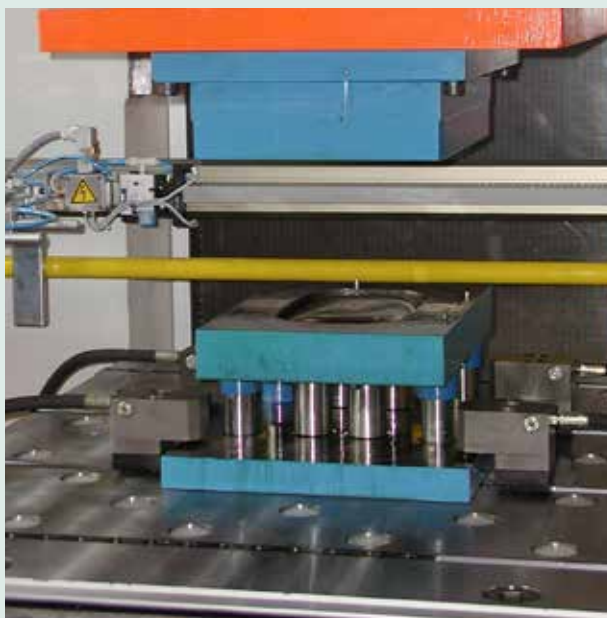
You can extend the length with 6" and 12" increments.

# IDEAS COME FROM EAS



Complete retrofitted press with pre rollers, die lifters, ECA cylinders and parking stations.

Die lifters, MHC cylinders with parking stations



After tool is positioned with the help of die lifters the die lifters are removed and replaced in the same T-slot by MTC clamping cylinders.

Air operated die lifters mounted in the alu housing are in this application used as a simple die change table.





# 3 DIE LIFTERS

# DAR

## 3.6 AIR OPERATED ROLLER AND BALL DIE LIFTERS, SERIES DAR AND DAB

DAR



### DESCRIPTION

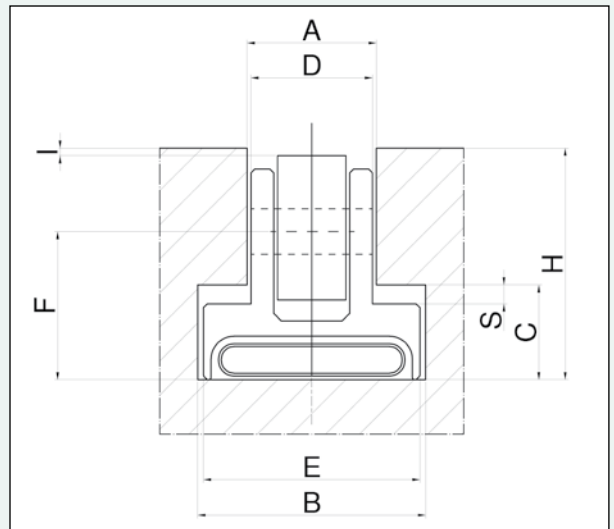
As an alternative to spring loaded and hydraulic operated die lifters, EAS offers also pneumatic operated die lifters. These air operated die lifters use 6 bar air pressure and come with a manual air valve and quick air connection coupler. Using air as a power source is in many cases an economic alternative to a hydraulic power source.

The die lifters are available as rollers and the bar is made out of aluminum. Standard sizes are according the metric DIN 650 T-slots size T 22, T 28 and T 36 mm, as well as imperial 1" T-slot size.

Max air pressure is 20 bar. Normal operating pressure 6 bar air.

EAS offers also an aluminum die lifer housing for the DAR 28 size. With this housing and the integrated die lifters one can simply design die change tables.

Optional : Ball lifters available on request. The ball diameter  $D=20$  and each ball can carry 25 kg. Capacity per meter is limited by the force the balls can carry and not what the die lifter housing can lift.



### SELECTION CHART

EAS Model Number	Lifting per meter at 6 bar (kg)	Capacity (kN)	Dimensions in mm								
			A	B	C	D	E	F	H	I	S
DAR 22-....*	1300	13	22H12	40	18	21,5	39		39	1	3
DAR 28-....*	1700	17	28H12	46	20	27	45		48	1,5	4
DAR 36-....*	2500	25	34H12	60	25	32	57	39	61	2	5
DAB 22-....*	900	9	22H12	40	18	21,5	39		39	1	3
DAB 28-....*	900	9	28H12	46	20	27	45		48	1,5	4
DAB 36-....*	1800	18	34H12	60	25	32	57		61	2	5

\* Please indicate your length





### Ordering code die lifters: DAR A-B / DAB A-B

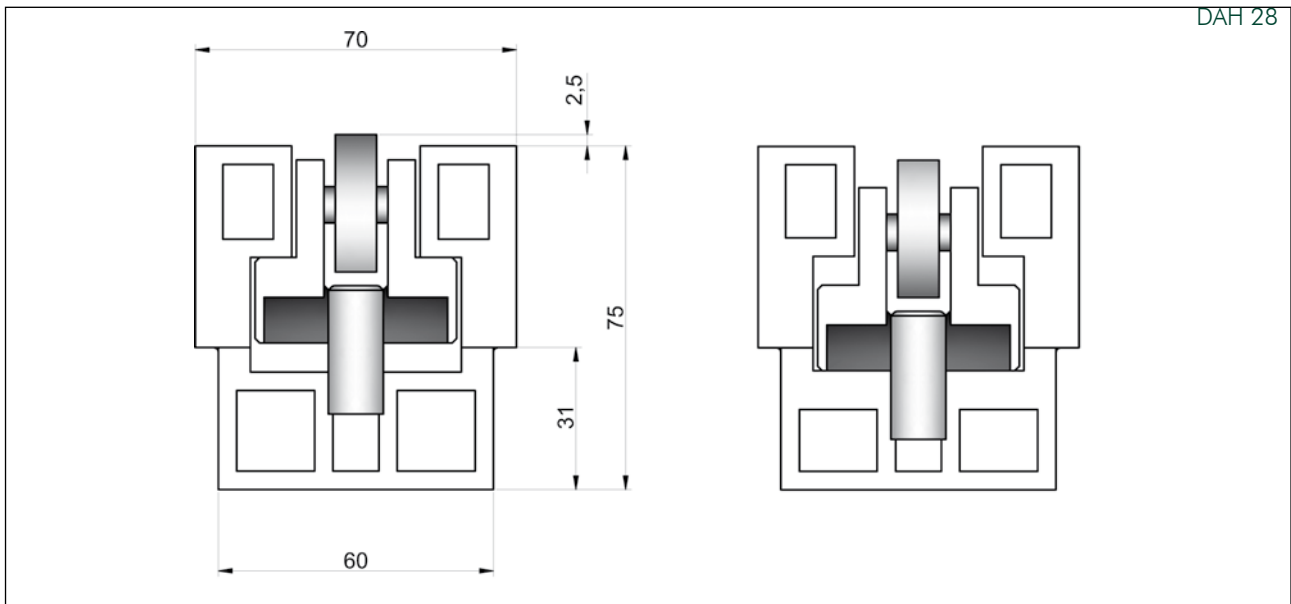
DAR = Die lifter Air with Rollers  
 DAB = Die lifter Air with Balls  
 A = T-slot size 22, 28 or 36 for the metric sizes and 1 for 1" imperial size  
 B = length of the die lifter in mm

Example DAR 28-600 is a die lifter for T-slot size 28 mm and with length of 600 mm. Lifting capacity is 0,6 x 1700 kg = 1020 kg or 10,2 kN

Ordering code housing (die lifter not included and need to be ordered separately).

### Ordering Code Example:

DAH 28-1200 is the housing for the DAR 28 or DAB 28 die lifter with a length of 1200 mm.



# P141 / PATG

## 4 PUMP UNITS AND CONTROLS

Selected or designed specifically for Quick Die Change applications EAS offers different kind of power packages. Depending on what kind of application and cylinders, double acting or single acting you have selected and if hydraulic die lifters are part or no part of your system, you can select different types of pump units. EAS offers a simple hand operated pump, air operated pumps as well as electric operated pump units complete with controls and valve packages.

### 4.1 MANUAL OPERATED, THE P141

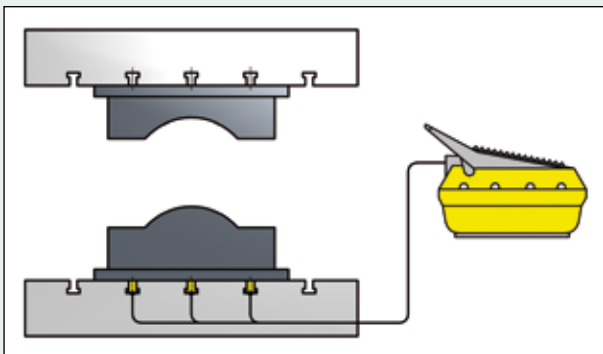


This hand pump can be used to pressurize single acting hydraulic cylinders but is mostly used for hydraulic die lifters in case these are use as only QDC item without any cylinders. The max. hydraulic pressure can be adjusted and set at the right operating pressure. The oil volume per stroke is 0,9 cm<sup>3</sup> and the reservoir is 327 cm<sup>3</sup>.

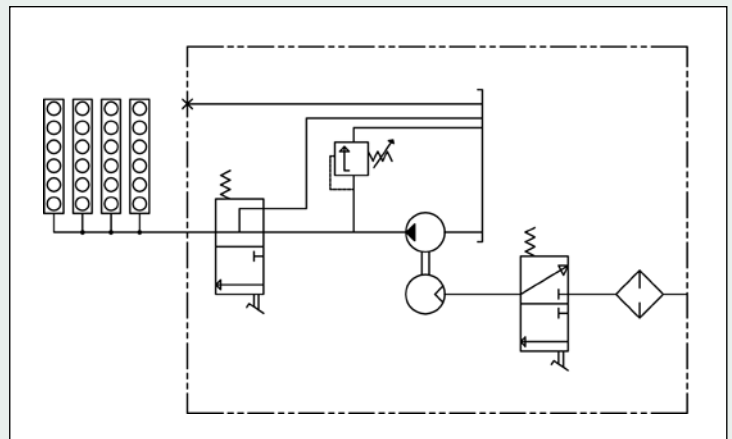
### 4.2 AIR OPERATED PUMP UNIT, THE PATG 3102PB



This compact, lightweight air driven power source is very suitable for hydraulic die lifters only as it can be activated by foot or manually. Operates at 1,7 till 8,7 bar air pressure and delivers 3,0 l/min hydraulic flow till 350 bar and at 7 bar air pressure.



Air hydraulic pump unit for max 250 bar hydraulic pressure for usage with die lifters . Model number EAHP-1



## 4.3 AIR OPERATED HYDRAULIC PUMP UNITS AND CONTROLS, SERIES EPA

### DESCRIPTION

These air driven hydraulic pump units use air pressure to generate hydraulic pressure. The pump's hydraulic outlet pressure is related to the air inlet pressure. See the diagrams. The hydraulic pressure can be changed by adjusting and setting the air inlet pressure.

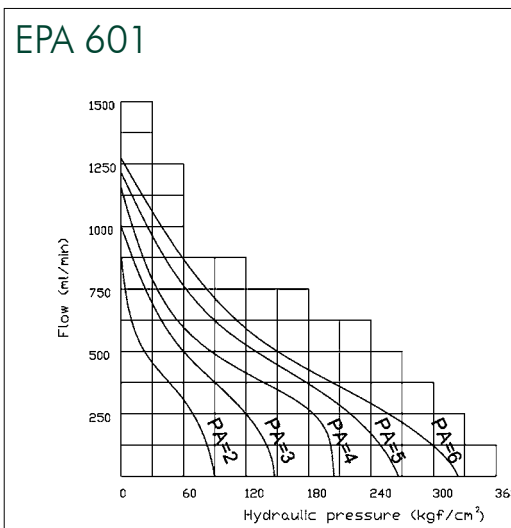
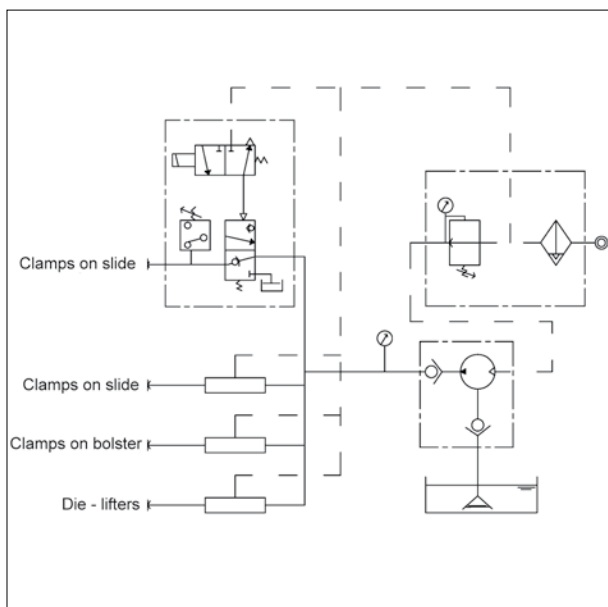
The EASchangesystems pump unit has an air hydraulic ratio of 1:60, meaning that if you have 6 bar air pressure you will reach 360 hydraulic pressure. For extra safety reason the EASchangesystems pumps feature a factory set safety valve, set at 350 bar. This is an extra circuit safety to protect your cylinders against pressure higher than 350 bar in case your air pressure is higher than 6 bar.

The units come complete with an oil reservoir with oil level indicator, air regulator with gauge, hydraulic pressure gauge, valves and pressure switches to set the required pressures in your different hydraulic circuits such as die lifters at 150 bar. Optional you can order a reservoir level switch, which will give you a signal when the reservoir oil level reaches its minimum. This could be required if the pump is mounted on top of the press and you cannot control the oil level easily.

You can order your pump with one valve (V1), with two valves (V2) for one hydraulic circuit on the bolster and one on the slide. With three valves (V3) for one hydraulic circuit on the bolster and two on the slide for safety reasons. With 4 valves (V4) if you require 3 circuits plus one for your die lifters. In case you have three hydraulic clamping circuits and you use air operated circuit for your die lifters you order type V3A1. The remote control consist of a simple to use handheld control panel with on the pump unit a PLC controlled control box.



Key switch to prevent mis-operation. Machine will stop automatically in case of mis-operation. The right sequence for operating die lifters and clamping circuit is already programmed. For ordering code see page 49 for electric hydraulic pump units. CUE-A-B



# 4 PUMP UNITS AND CONTROLS

## SELECTION CHART

EAS Model Number	Max hydraulic pressure (bar*)	Flow (l/min)	Reservoir size (L)	Quantity valves	Dimensions in mm						
					L1	L2	H	H1	H2	D1	D2
EPA 601 V1	350	1,2	10	1	590	563	380	150	80	12	150

\* at 6 bar air pressure

Ordering code: EPA 601-V1-A1-0

V1 = with 1 valve, V2= 2 valves, V3=3 valves, V4=4 valves

A1 = +1 additional air valves for air operated die lifters

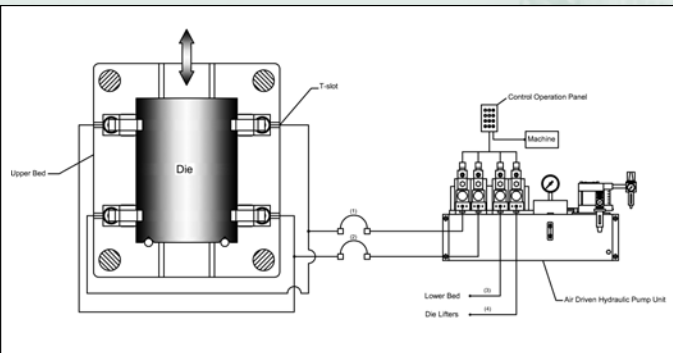
0 =voltage solenoid with 0=DC 24V, 1=110V, 2=230V

Ordering code example:

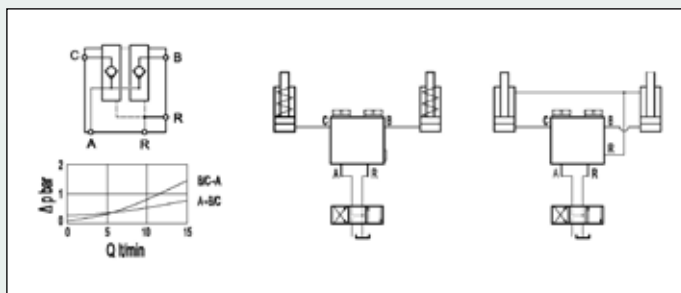
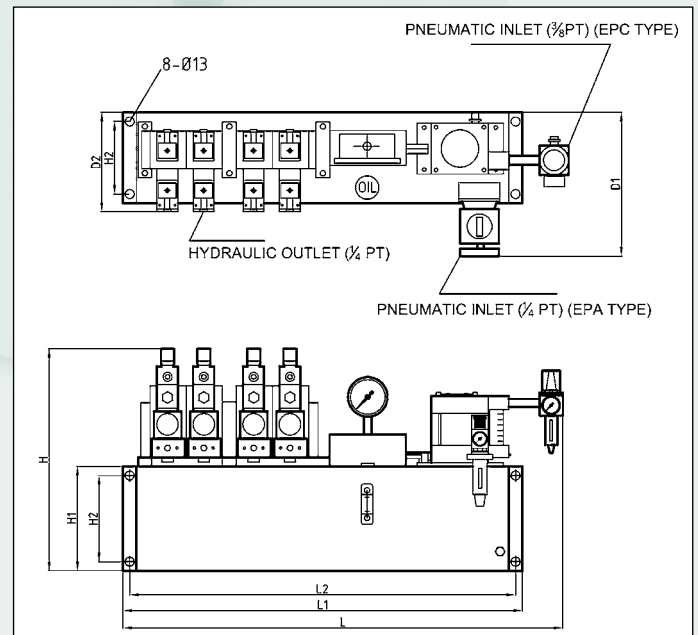
EPA 601-V3-0 is an EAS Air Pump with 60:1 ratio with 3 valves and 24V DC for the valves.

## OPERATIONAL PANEL TYPE CUE-A-B (SEE PAGE 49)

### SYSTEM SETUP EXAMPLES



T-slot mounted single acting rocker clamps ERC, hollow rams ECA or MHC or T-slot clamps MTC with split safety circuit on the upper bed and one circuit on the lower press bed and one circuit for the single acting die lifters.



## 4.4 DOUBLE HYDRAULIC CHECK VALVE TYPE EDCV-1

For usage on single acting cylinders and to protect the system against hose leakage and still keep the cylinders under pressure EAS offers a double hydraulic check valve type EDCV-1 to which 2 single acting hydraulic circuits can be connected. Ask EAS for dimensions and details.





## 4.5 ELECTRIC HYDRAULIC PUMP UNITS SERIES EPE AND CONTROLS



Standard range can be selected with the following ordering code.

**Ordering code: EPE-A-B-C-D**

EPE = EAS Pump Electric

A: is for the flow range: 2 = 2 l/min , 4 = 4l/min.

B: is for the pressure range 25 = 250 bar max. hydraulic pressure, 35 = 350 bar max hydraulic pressure

C: is the amount of valves 2 = 2 valves, 3 = 3 valves

D: voltage 1 = 110V , 2 = 220V, 4 = 400V

The suitable control unit can be ordered with the following

**ordering code CUE-A-B**

CUE = Control Unit EAS

A = is the amount of circuits requires;

20 = for 2 double acting cylinder circuits

21 = for 2 double acting circuits and 1 die lifter circuit.

30 = 2 single acting circuits on the upper bed and 1 on the lower bed for single acting cylinders

31 = 2 single acting circuits on the upper bed and 1 on the lower bed for single acting cylinders and 1 die lifter circuit.

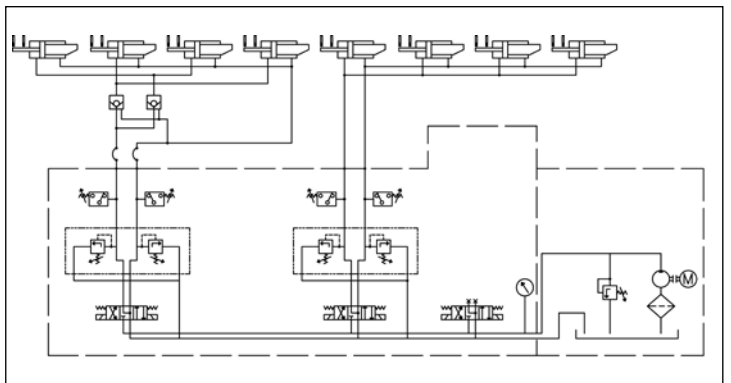
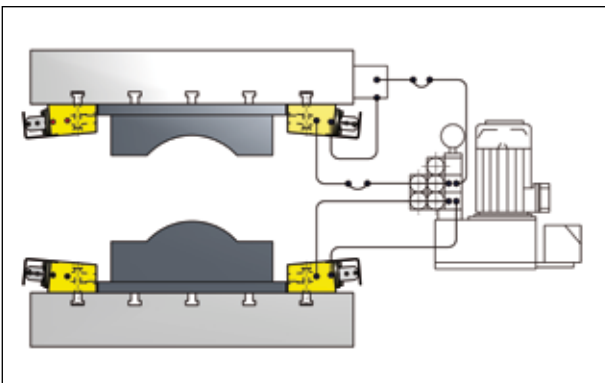
40 = special on request

B = for which area:

E = Europe

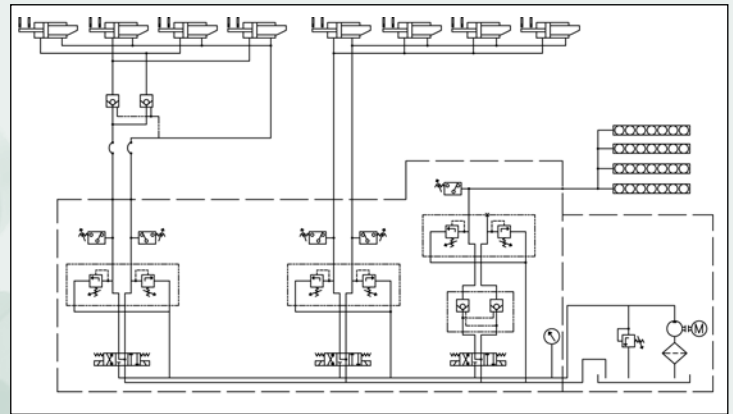
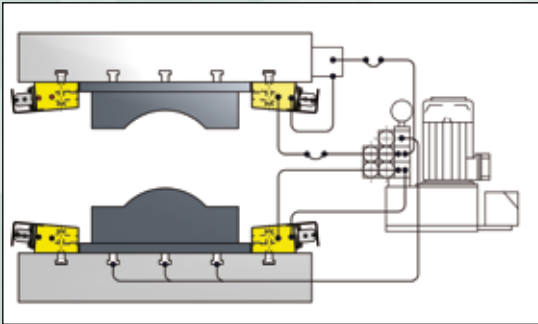
U = USA

A = Asia

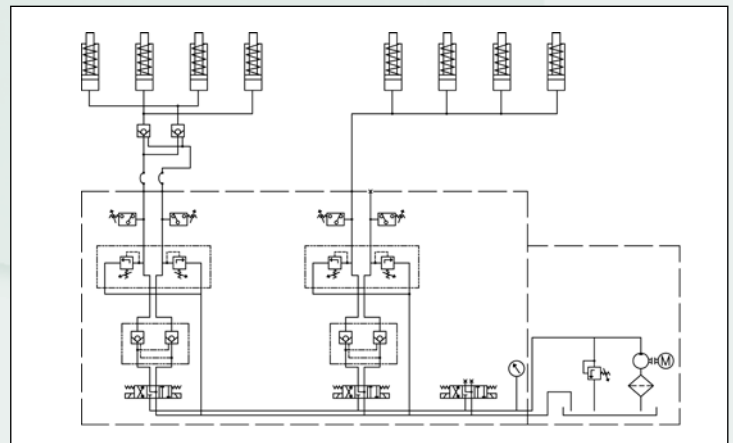
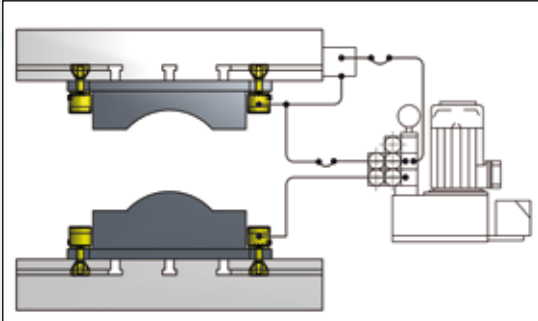


Hydraulic scheme for 2 circuits of double acting MOD cylinders with pressure switches. For example EPE 2-25-3-4 is an electric pump unit with 2 l/min at 250 bar max., with 3 valves and for 400 Volt.

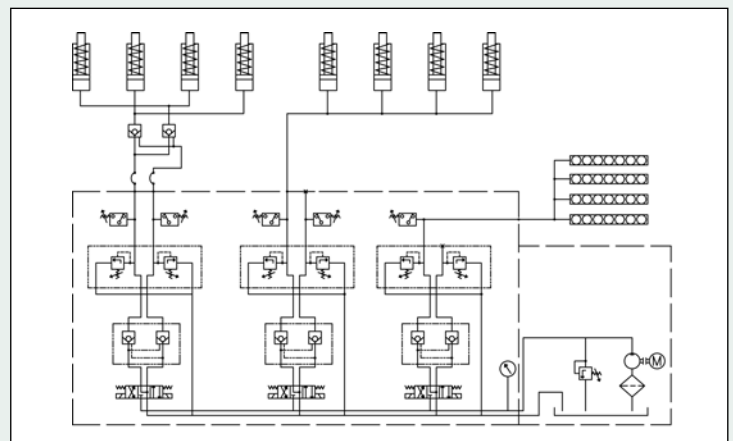
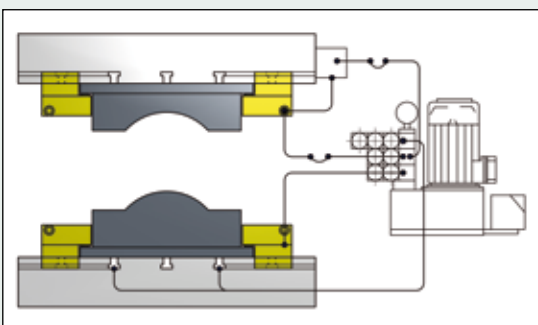
# 4 PUMP UNITS AND CONTROLS



Hydraulic scheme for 2 circuits of double acting MOD cylinders with pressure switches as well as a set of die lifters with also a pressure switch. Pressure switches will switch off the pump if the required pressure is set. Controls are designed in such a way that in case die lifters are used the lower bed clamps can not be pressurized before the die lifters are released.



Hydraulic scheme for 2 circuits of single acting cylinders.



Hydraulic scheme for 2 circuits of single acting cylinders and a circuit for die lifters.

# 5 DIE HANDLING SYSTEMS



Complete die change systems are much more than only clamping and die lifters solutions. These improve the securing of the dies. However it does little to the overall die change over time. Comprehensive die change systems do not only reduce down time drastically but are also safer, give more control over the die movements and reduce labor cost.

The advantages are many.

The right choice is however very important. Factors which must be considered choosing the right die changing system are:

- Available budget and wanted results
- Frequency of die changes
- Amount, size and weight of dies involved
- Number of presses and press type
- Degree of automation
- Floor space and floor conditions
- Press shut height
- Die storage location
- Crane or forklift availability
- Safety aspects



Each system offers different advantages.

On the next pages you will find different solutions, from a simple pre roller system towards a almost full automatic factory with advanced die change systems.

EAS offers you the expertise, the different solutions for YOUR needs, with experienced people all over the world.

EAS offers the following wide range of die carts:

- Manual for small dies up to 1 Ton ( 10 kN)
- Electric driven carts up to 40 Ton (400 kN)
- Rail guided carts up 100 Ton (1000 kN)
- Air floating carts up to 125 Ton (1250 kN)

Either suitable for 1 or 2 dies, fixed or adjustable height, die movement towards one or both sides of the cart and manual, semi automatic or full automatic operation.





# 5 DIE HANDLING SYSTEMS

## 5.1 PRE ROLLERS, THE EAS DIE LOADING ARMS SERIES PR AND PR...S

### DESCRIPTION

The pre rollers make it very simple to pull out or to push in a die. It also allows the use of a fork lift truck or crane to remove and load the die. Die stoppers at the end of the pre roller will prevent the die from rolling off, but also allows easy loading of the die on the pre rollers. The mounted hook allows the pre roller to be removed from the press if necessary. It also allows the usage of one set of pre rollers for several presses by applying several sets of hooks.

Swivel models type PRS are fixed mounted pre rollers which can be turned away and stored along the press bed. Long pre rollers do feature a roller support in order to carry safely the load over the required distance. On request EAS provide powered rollers as well and other options. Mounting instructions are available from your EAS source.



PR

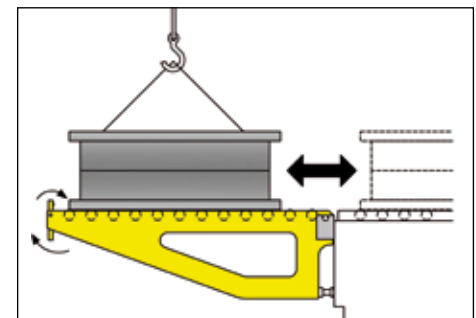
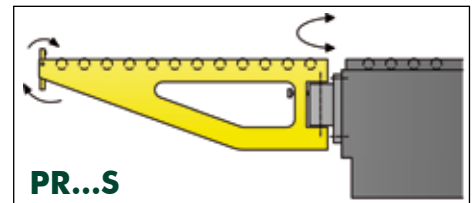
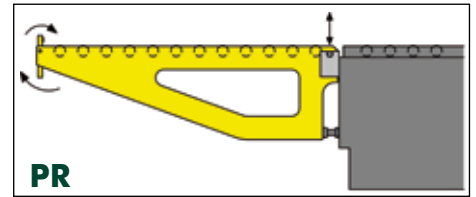


## SELECTION CHART

EAS Model Number including 2 pre rollers and 2 mounting blocks	Individual EAS Model Number of 2 mounting blocks	Carrying per 2 set pre rollers Capacity		Length mm	Height	
		kg	kN		Type PR mm	Type PR...S mm
PR 5-500	PRMB 500	500	5	500	200	200
PR 5-800	PRMB 500	500	5	800	200	200
PR 5-1000	PRMB 500	500	5	1000	200	200
PR 10-500	PRMB 1000	1000	10	500	200	200
PR 10-800	PRMB 1000	1000	10	800	200	200
PR 10-1000	PRMB 1000	1000	10	1000	200	200
PR 20-800	PRMB 2000	2000	20	800	250	320
PR 20-1000	PRMB 2000	2000	20	1000	250	320
PR 20-1250	PRMB 2000	2000	20	1250	250	320
PR 30-1000	PRMB 3000	3000	30	1000	400	420
PR 30-1250	PRMB 3000	3000	30	1250	400	420
PR 40-1000	PRMB 4000	4000	40	1000	400	420
PR 40-1250	PRMB 4000	4000	40	1250	400	420
PR 60-1300	PRMB 6000	6000	60	1300	on req.	n.a.
PR 60-1600	PRMB 6000	6000	60	1600	on req.	n.a.
PR 60-2000	PRMB 6000	6000	60	2000	on req.	n.a.
PR 70-1450	PRMB 7000	7000	70	1450	on req.	n.a.
PR 80-1200	PRMB 8000	8000	80	1200	on req.	n.a.
PR 80-1600	PRMB 8000	8000	80	1600	on req.	n.a.
PR 80-2000	PRMB 8000	8000	80	2000	on req.	n.a.
PR 100-2000	PRMB 10000	10000	100	2000	on req.	n.a.

Other capacity and length on request.

Double switch versions on request



Mounting information: ask EASchangesystems



# 5 DIE HANDLING SYSTEMS

## 5.2 DIE CHANGE CARS

### 5.2.1 MANUAL DIE CHANGE CARS



Transferring the die into the press can be done manually or must be powered depending on the weight of the die. When the die is light enough, manual transfer is practical and economic. EAS offers the following solutions

A manual car is used to transport the dies from the storage area directly to the presses.

The adjustable height feature uses a hydraulic foot pump and cylinder to raise and lower the bed. The car can accommodate one 0,8 ton or two 0,5 ton dies. When the car arrives at the press it is positioned to allow the existing die to be manually pulled out of the press. To support the die between the cart and the press a set of bridge rollers can be added. Once the die has been removed the car is then positioned to allow the new die to be manually pushed into the press. The bridge rollers are then raised up out of the way and the die is transported back to the storage area.



EAS can offer different solutions depending on the die size and space limitations. Carts can be configured for side load or end load operation depending on the plant layout. Both configurations speed up the die change process.



## 5.2.2 ELECTRIC DRIVEN DIE CHANGE CARS



When the dies are too heavy to be transported manually, a battery powered car with hand controls can be the solution. These carts can be equipped with variable height roller decks to accommodate different size of presses and storage systems levels.

Manual or powered push-pull mechanisms are available to transfer the dies in and out of the machine or storage systems. These powered transfer mechanism can be operated electrically or with air.

Die locks keep the die from moving on the roller deck when the car is in motion. These cars handle one or two dies with a combined weight of 40 ton and come equipped with a battery charging system.



A two station die change car can complete a die change in less than 5 minutes when used in combination of the EAS die lifters and clamps.

For smaller die sizes and weight the EAS TUGunit might be a cost effective solution. These Tugunits are used for transport purposes as shown on picture but can also be used to transport and position a die change car or table. Available in three sizes with different power drives and they can be equipped with a hydraulic unit to lift as well the car or table.

Electric driven car for a 10 ton die with chain driven push pull device.



Tag unit





# 5 DIE HANDLING SYSTEMS

## 5.2.3 RAIL GUIDED DIE CHANGE CARS



1 x 18 ton die change car on rails.

A further step towards automation is the installation of a rail car system to serve one or more presses or a complete stamping line of presses.

This usually means a complete reorganization of the plant and is most often done in new plants. The die change car transports the dies to and from the storage. The car can be battery powered or by a cable trolley in the floor or by an overhead power rail; in most cases the option is determined by the rail length and the frequency of die change over. The cars are equipped with positioning devices for exact positioning in front of the press or at the storage rack. Economy versions are equipped with a spindle push/pull device while the more advanced cars are equipped with telescopic push pull devices with automatic grippers.

For safety purposes, each die roller bed is equipped with a die lock, which holds the die on the car during transport along the presses. Safety bumpers, acoustic or light signals can be part of the car. They can be operated manually, semi automatic or completely automatic.

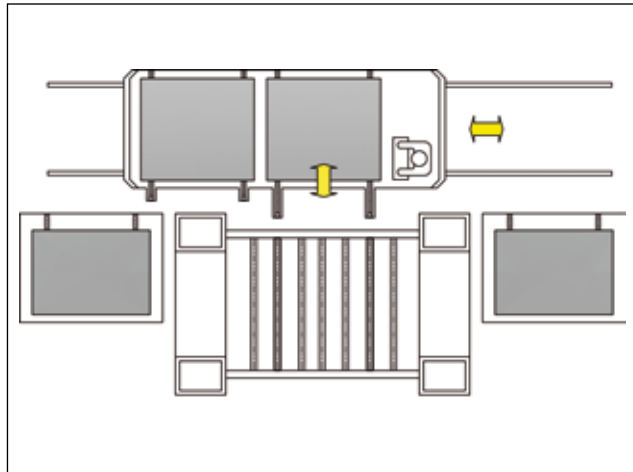
The operator can either walk along with the car or drive on the car on an operator platform. Loading and unloading of the dies can be done by an overhead crane.







*This rail guided car carries two dies each 10 ton weight and changes the dies with a telescopic push pull device which travels underneath the die. The angle shaped guides on the car are for loading the dies with an overhead crane. Large safety bumper on each side of the car and rails in the floor with a power cable with trolley also in the floor. In this way a fork lift truck can drive over the rails as well. Clamping system in the press is a double T-slot clamp system with rollers and in the upper bed are the EAS MTR cylinders built in.*



*Another example of a two stage die car with 2 x 10 ton dies, safety bumpers and telescopic push pull device to one side of the car.*

# 5 DIE HANDLING SYSTEMS



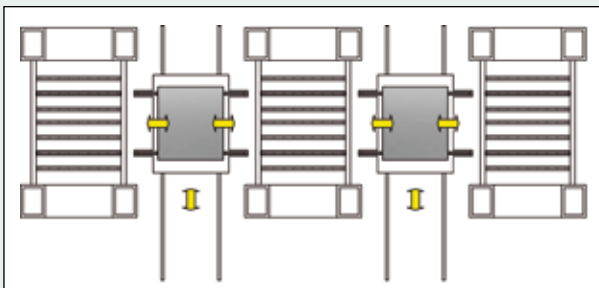
Example of a fully automated die change system with rail guided cars for 2 x 5 ton dies. In the press die lifters and the EAS MOD series clamp.



Special die change car on rails with rotating upper deck. The car arrives with an empty die place at the press, pulls out the existing die on the car, goes back 40 cm and turns the total upper deck 180 degrees, bringing the new die in front of the press. Then drives the 40 cm again to the press and pushes the new die into the press against the die stop. A die change with 2 x 15 ton dies in less than 5 minutes.



Special designed AGV die change car for die changes of 65 ton at a well known Italian car manufacturer. EAS installed 3 of such AGV's for a quick die change in a large vertical press where the die change cars are actually drive into the press.



Die carts or even moving bolsters on multi press lines do offer a quick die change possibility. EAS offers you the experience and different possibilities. As a single car concept or as a multi car concept with design, lay out for clamping systems, die carts and installation as a turn key supplier for you. All from one source.



## 5.2.4 AIR FLOATING DIE CHANGE CARS



Air float cars actually float on a thin air film like a hovercraft, which provides great mobility in restricted areas. They can also carry very heavy loads without special floor reinforcement.

It can be an interesting alternative to rail guided die change cars. However the floor must be horizontal, cracks filled, be sealed to perform in the best way. Many press shops do not feature such floor conditions.

Air powered drive wheels control the speed and direction of the cart while the cart is moving.

Ask EAS for the possibilities in your factory.

## 5.3 DIE CHANGE TABLES



Single or double station die change tables are dedicated to one press. These tables can use manual or powered transfer mechanism depending on the mould weight to load and unload the press. The powered transfer can be equipped with an automatic push button control.

When using a single station die change table you must first pull the die from the press and remove it from the table by overhead crane or fork lift truck. The new die is then positioned on the table roller deck. The new die is then pushed into the press. These tables are used in conjunction with clamp and die lifter systems in the press.

The picture shows a simple manual two station die change table. On the frame we have mounted our aluminum housing DAH 28 with the air operated die lifters DAR 28. The middle section can be moved a side in order to allow the operator to push the die into the press and to have access to the press. Left or right is space to have the new die already waiting to be brought in. Another idea from EAS as IdEAS come from EAS.



*Die inspection and transportation unit for the maintenance department equipped with simple magnetic clamping system to clamp the die.*



# 5 DIE HANDLING SYSTEMS

## 5.4 INSPECTION UNITS



Simple and safe maintenance for your expensive tools. A further stage in the automation of a stamping plant is the installation of an inspection unit. This rationalize the inspection and servicing of dies, superceding a variety of slow and sometimes hazardous methods involving jacks and levers or block-and-tackle. Units can be equipped with hydraulic or magnetic clamping systems on fixed and movable plates, the inspection unit greatly facilitates the rotation and precise positioning of dies for maintenance and repair work; either as separate halves or coupled tools.



### OPTIM 25

For dies up to 3 ton weight EAS offers the Optim 25 service unit.

The standard unit is 1200 mm long, 580 mm wide and 275 mm high. The two turning platforms are 350x500mm. Optionally the units can be placed on a higher table for easier access and with upstanding mounting plates.

EAS supplies these units in several sizes up to 200t die weight. The units can be equipped with hydraulic cylinders to tilt one or two mounting plates 90 degrees. For safety reasons the unit can be equipped with a safety mat which stops all movements if somebody steps into the table and or with safety light curtains.

*Optime 25*



*A small unit for dies up to 3 ton with both mounting plates turning.*



*Inspection unit for a 100 ton mould.*

## 5.5 DIE SPLITTER, DIE SEPARATOR



The die splitters or die separator makes it possible to split and open the die, turn one die half and bring the turned die half again on the table. One person can there for split and service a die set in a safe, controlled and repeatable way. EAS delivers these die splitters from a die weight of 2 ton up till 60 ton.



*Another example of a die splitter.*



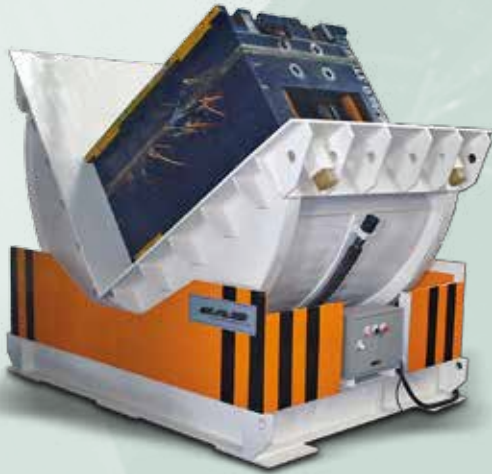
*A 15 ton die can be easily splitted.*



*The upper half is lowered and moved outside for easy access and maintenance.*

# 5 DIE HANDLING SYSTEMS

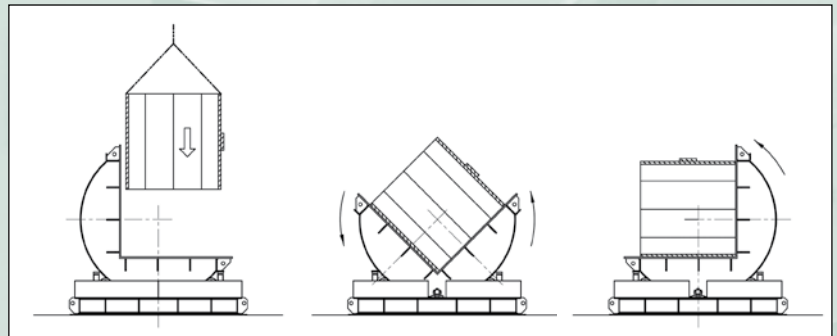
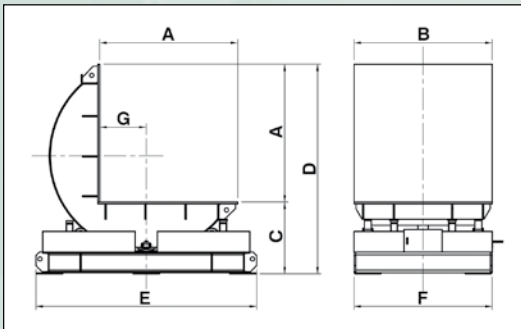
## 5.6 DIE TILTING UNITS, DIE ROTATORS



### EAS die rotator type EMS

Despite their high value, the turning and opening of expensive dies and moulds is still often done by means of an overhead crane. This is dangerous work for the operator and the risk of damaging the expensive tools is high. Using the EAS die rotators one operator can easily and safely rotate the die on his own. Two models are available, a floor standing model type EMS and one that is on level floor type EFT, which takes up less space and allows, for example, fork lift trucks to drive over the unit if not in use.

For more information please consult your EAS partner. Available for 3 ton dies up to 50 ton dies.



### SELECTION CHART

EAS Model Number	Max. weight (ton)	Time/90° (sec)	Motor (kW)	Dimensions in mm							Machine Weight (kg)
				A	B	C	D	E	F	G	
EMS 30	3	24	0.75	900	900	516	1416	1250	900	350	780
EMS 50	5	20	1.5	1050	1050	564	1614	1550	1050	481	1160
EMS 80	8	26	1.5	1300	1050	631	1931	1700	1050	481	1400
EMS 100	10	26	2.2	1300	1300	631	1931	1700	1300	481	1550
EMS 150	15	35	3.7	1550	1550	848	2398	2350	1550	560	3250
EMS 200	20	40	3.7	1800	1800	915	2715	2500	1800	600	5100
EMS 300	30	43	5.5	2000	2000	919	2919	3460	2000	850	6900
EMS 400	40	54	3.7 x 1	2200	2200	1178	3378	3500	2200	850	10000
EMS 500	50	54	5.5 x 2	2400	2400	1232	3632	4100	2350	900	13000



## 5.7 DIE STORAGE SYSTEMS



This electric driven die change car for a large vertical press can bring the dies far away from the press to a special die storage area. The dies can be stored left and right of the electric driven car. The driver has a camera and a monitor for exact positioning the car into the press. Changing and store dies between 10 and 20 ton is in this way simple, fast and safe.



# 6 COUPLERS

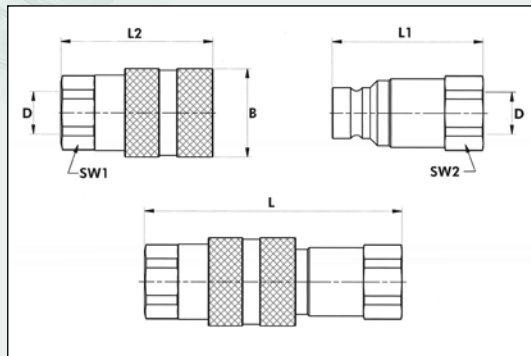
## 6.1 MONO COUPLERS



For hydraulic connections EAS deliver the following range of couplers:

### < EIRF/M series

Quick release, non spill, flat face hydraulic manual coupler, suitable for 210 till 300 bar (3000 till 4200 psi) pressure (depends on the model) and suitable for 30 l/min. till 1000 l/min. flow. Available in 7 different sizes from size 7 mm until size 30 mm.



### QUICK RELEASE FLAT FACE HUDRAULIC COUPLER

EAS Model Number	Max. flow l/min	DIN mm	Max. work pressure (bar)	Burst press. coupled (bar)	Dimensions in mm						
					B	D	L	L2	L1	SW1	SW2
EIR F/M 14	30	7	300	1200	28	1/4"	85,5	48,0	48,0	22	22
EIR F/M 38	50	9	210	1000	32	3/8"	108,5	60,0	64,5	27	24
EIR F/M 12	50	9	210	1000	32	1/2"	116,5	95,0	62,5	27	27
EIR F/M 34	200	15	210	1000	42	3/4"	132,0	78,0	79,0	36	36
EIR F/M 100	250	17	210	850	48	1"	154,0	82,5	92,5	45	45
EIR F/M 114	350	21	210	850	55	1 1/4"	173,0	90,0	105,5	55	55
EIR F/M 112	1000	30	200	700	80	1 1/2"	215,0	111,0	152,5	65	70

## 6.2 MANUAL MULTI COUPLERS



With manual multi couplers one can connect several fluid circuits, such as hydraulic, air and electric circuits fast and without making mistakes of wrong connections.

A simple parking station is provided to 'park' the press side multi coupler during a die change, avoiding coupler damage or dirt entering the circuits.



EAS Quick Connect Manual Multi Couplers greatly reduce set-up times. Available with different amount of couplers and coupler sizes for air, water and hydraulic connections. Ask for our EAS coupler catalogue for all the different possibilities or ask your EAS contact.

## 6.3 AUTOMATIC MULTI COUPLERS



The EAS self-locking and swimming multi coupler design can be used in a wide range of industrial application to connect water, air, gas, steam, hydraulic and electric connections in a simple and quick way. Application fields are for example automotive, test benches, machine building, plastic injection moulding industry, die-casting and off shore applications.

In order to design and apply the right solution we need to discuss with you the following:

- what fluid or gas need to be connected
- pressure range
- temperature
- flow requirements
- open or closed couplers
- leak-proof or not
- connecting threads
- how many connections
- voltage and amperage for electric connections-amount of cycles and cycle time
- environment conditions
- size limitations.



With all this, most applications require a special multi coupler, which can be very small up to very large with many mono couplers or for a long stroke.

With the EAS automatic multi couplers you achieve the following advantages:

- Time saving, while you connect in the same time in a few seconds all fluid and electric connections.
- Safety increase. No wrong connections can be made any more as the multi couplers can only be connected in one way, connection and disconnecting is automatic, cleanbreak connections to avoid spillage of fluid also at higher temperature.
- High quality products with minor maintenance, resulting in a long trouble free life.
- Long experience in the coupler technology with on going research and development.
- Productivity increase while long lasting down times will be reduced to a few seconds to connect all your utility connections automatically.





# IDEAS COME FROM EAS



**EASchangsystems supplies automatic multi couplers on movable bolsters for connecting electricity, pneumatic and hydraulic connections**

# 7 HOW TO SELECT THE RIGHT CLAMP

With the wide range of hydraulic clamps available from EAS Change Systems please find below three selection charts to select the right clamp for your application.

- standard
- optional

FIXED CLAMPS							
	Bolster	Slide	Single Acting	Double Acting	Sensors	Standaard backplates	Non Standaard backplates
MLC ledge clamps	●	●	●			●	○
MDD wedge clamps	●	●		●	○	●	○
MOD self locking clamps	●	●		●	○	●	○
Pressmag magnetic clamps	●	●	Electric		●	●	●
ESCH double T-slot clamps	●	○		●		●	●

INTERGRATED CLAMPS							
	Bolster	Slide	Single Acting	Double Acting	Sensors	Standaard backplates	Non Standaard backplates
MPR pull clamps	●	●		●	○	●	●
MSR swing clamps	●	●		●	○	●	●
MTR three position clamps	●	●		●	○	●	●
HECS wedge clamps	●	●		●	●	●	●

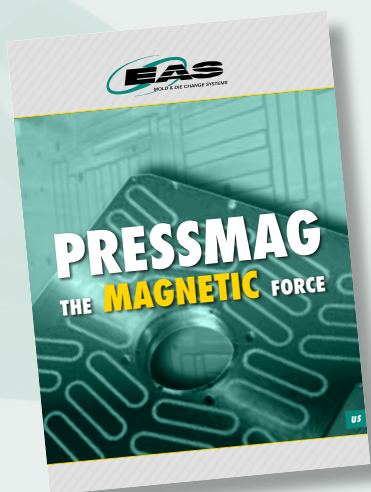
MOVABLE CLAMPS							
	Bolster	Slide	Single Acting	Double Acting	Sensors	Standaard backplates	Non Standaard backplates
ERC rocker clamps	●	●	●		○	●	●
ECA pull clamps	●	●	●			●	●
MHC pull clamps	●	●	●			●	●
MTC T-slot clamps	●	●	●			●	●
ETDC traveling die clamps	●	●	●		●	●	●
ESCH double T-slot clamps	●	○		●		●	●

## 8 OTHER EAS PRODUCTS AND SOLUTIONS



### EAS Quick Mould Change systems (QMC)

EAS offers a wide product portfolio for a quick mould change on injection moulding machines and blow moulding machines. This QMC product line offers mechanical, hydraulic and magnetic clamping solutions for machines up to 6000 ton, ejector couplers, couplers systems for all utility connections, mould handling and maintenance equipment. From a simple mono coupler towards a complete automated factory, all solutions from one international source.



### EAS magnetic clamping solutions (MCS)

EAS also offers permanent magnetic clamping solutions for the fast and reliable clamping of moulds, dies and tools on injection moulding machines, die casting machines and stamping presses.

**Time is money**





# IDEAS COME FROM EAS

## ALL SOLUTIONS FOR THE AUTOMOTIVE INDUSTRY

Another example of a total solution project was for an Italian automotive supplier for a complete automated system for one of their factories in Spain. For two large 2700 t Italtch injection moulding machines, EAS designed, manufactured, co-ordinated and installed the following complete QMC system. The injection moulding machines were equipped with a hydraulic clamping system and rollers for horizontal loading of the 50 t moulds, as well as with automatic multi coupler systems for a quick and leakproof connection of all utility connections.

A rail-guided mould change car carrying 2 moulds of max. 50 t was installed, as well as the rails for this car and the power supply. Nine mould storage systems are installed on the other side of the guide car rails, including an automatic preheating station to automatically preheat the mould that is going into the machine. This also saves hours by doing this outside the machine instead of when the mould is on the machine.

*Each machine is equipped with self-locking adaptive hydraulic clamping and rollers for quick and easy horizontal loading and clamping of the moulds.*



*The rail-guided mould change car for two moulds of max 50 t. This car can be operated by means of a remote control unit and is equipped with steps for easy access to the top of the car, as well as safety bumpers.*



*On the other side of the rail guide car are 9 mould storage systems, on which the moulds are stored using the mould change car.*



*Each mould has standardized backplates and is equipped with standard automatic multi coupler plates on which water, hydraulic and electrical connections are gathered.*



*The storage systems also include a preheating station, which is shown here during the installation period.*



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