Technical data for M-Series

2241

Machine type: DAK 580	Locking pressure	kN	6400
	Locking stroke	mm	750
	Ejector force	kN	300
	Ejector stroke	mm	165
	Die height, min./max.	mm	300-900
	Size of clamping plates	mm	1180x1180
	Column spacing	mm	750
	Column diameter	mm	150
	Injection position standard	mm	0 - 280
	Drive motor	kW	37
Size of injection unit: 62	Max. injection force	kN	623
	Injection stroke	mm	550
	Plunger diameter	mm	60 -110
	Casting volume	cm^3	1036 - 3484
	Special casting pressure	daN/cm^2	2203 - 655
	Operating pressure	bar	160

Terms and definitions

2241

Machine types

Term	Definition
Die casting	Die casting is a process in which molten metal is injected in a die and held under high pressure until it is completely solidified.
Die casting machine	A force-operated machine which injects molten metal under pressure into a reusable, split die and connected to the machine plates.
Die casting system	A die casting machine including accessories representing a production unit.
Accessories	Facilities which perform automatic process steps in addition to those of the die casting machines, e.g. metal feed, casting part removal, die spraying.
Metal	The material which is cast.
Hot chamber die casting machine	Die casting machine in which the holding sleeve and the piston are below the surface of the molten metal in the holding chamber.
Cold chamber die casting machine	Die casting machine in which molten metal is fed in metered amounts from a separate holding furnace to the sleeve

Assemblies

2241

Term	Definition
Die locking unit	The unit which opens and closes the die, holds the die closed against the force which is exerted on metal during solidification.
Casting unit	The unit which presses the metal from the sleeve into the die and holds the metal under pressure during solidification.
Ejector unit	The unit which ejects the cast parts from the die cavity.
Core puller	The unit which triggers and controls the core pulling movements.
Automatic tie bar removal device	Device for the automatic removal of tie bars in order to facilitate the setup of dies.
Automatic ejector locking coupler	Device for the automatic coupling of machine ejector plates and the die ejector.
Automatic die clamping device	Device for the automatic clamping of the die onto the machine plates.

Machine parts

2241

- **Machine parts of die locking system**

Term	Definition
Fixed clamping plate	Plate on which the fixed form half and the metal casting system are mounted.
Moving clamping plate	Plate on which the moving die half is mounted.
Cylinder plate (cross-head)	Plate on which the die locking mechanism and the locking cylinder are mounted.
Tie bars	Machine parts which accept the locking force and guide the moving plate.

- **Machine parts of casting system**

Term	Definition
Casting drive	The entire system which moves the piston and which exerts a force on it.
Sleeve	Cylindrical container in which pressure is exerted on the molten metal.
Plunger	Piston which injects metal from the sleeve into the die and which exerts pressure during solidification.
Piston rod	Rod which connects the piston to the casting drive.

- **Machine parts of ejector system**

Term	Definition
Ejector plate	Part which transfers the movement to the ejecting device of the die.
Ejector rod	Part which connects the ejector plates of the machine with the ejecting unit of the die.

- **Machine areas**

2241

Term	Definition
Die area	Area between fixed and moving clamping plates
Area of die locking mechanism	Area between moving clamping plate and cylinder plate
Casting drive area	Area between fixed plate and casting cylinder

- **Operating modes**

Operating mode	Definition	Application
Setup	All process steps can be selected in sequence and initiated manually (except for injection).	Individual process steps are executed (even out of sequence with normal operating processes). Example: perform die changing.
Manual mode	The individual steps in the machine cycle are initiated manually in a predetermined sequence.	Individual process steps are executed (only in programmed order). Example: terminate casting cycle or perform casting cycle for tests or troubleshooting.
Semiautomatic	Each cycle is initiated manually but then is executed automatically until it is completed.	Produce casting parts, whereby at least one of the external machine process steps is executed by the operator.
Automatic	Termination of casting cycle initiates the next casting cycle.	Uninterrupted production of castings, whereby all external machine process steps are executed by automatic add-on equipment.

- **Times**

2241

Term	Definition
Compression time	(Only in automatic mode) The compression time determines the duration of the injection process. It starts with phase 1. On expiry of the compression time, the plunger is retracted.
Cooling time	(Only in automatic mode) Time in which solidification of the casting part takes place. The die remains closed during the cooling time.
Locking time	The time of the locking process: start of locking unit until locking unit is closed.
Opening time	(Only in automatic mode) Time between terminated machine cycle and next machine cycle.
Cycle time	The necessary time for performing a production cycle. Sum of all individual times results in the cycle time.
Filling time	Time in which die cavity must be filled. Parts without overflows. To determine the filling time, start with the smallest wall thickness of the casting part. Measure the wall thicknesses of the casting part, e.g. fins.
Sprue break time	During the time set, the hydraulic sprue break cylinders push the locking unit from the nozzle (= sprue break process). They define the travel path.

- **Velocities/speeds**

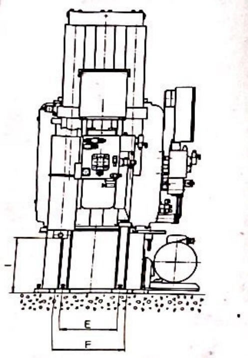
2241

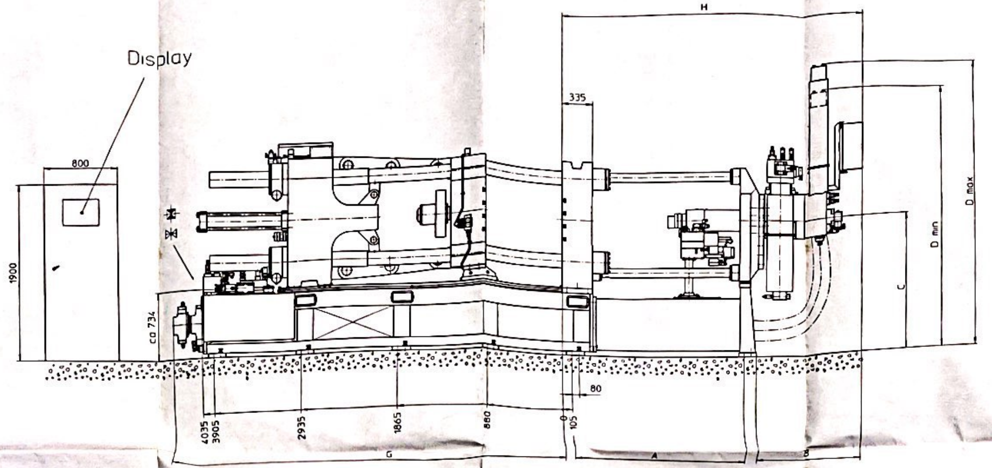
Term	Definition
Phase 1	The injection process starts at the velocity of phase 1. The plunger pushes the liquid metal at low velocity through the gooseneck, nozzle, sprue bush, lug gate in the tool through to the ingate of the casting part.
Phase 2	The casting part is filled at the velocity of phase 2 which is higher than the velocity of phase 1.
3. Phase	A recompression of the casting part is achieved with phase 3. The pressure level depends on the load on the casting part.
Plunger velocity	The velocity of the plunger during phase 2 in cm/s.
Ingate velocity	Velocity of metal melt in the ingate in m/s. Ingate velocity greater than 60 m/s leads to erosions in the die.
Opening velocity	Velocity of moving clamping plate for "Open die".
Closing velocity	Velocity of moving clamping plate for "Close die".
Ejector velocity	Velocity for ejector movement "Advance and retract".

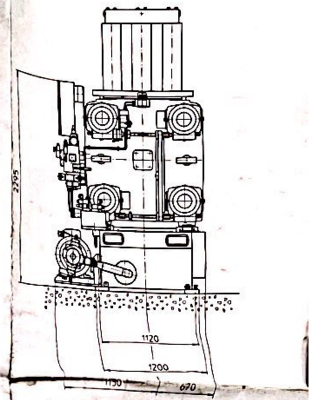
- **Pressures**

2241

Term	Definition
Specific casting pressure	Enter the specific casting pressure at which the melt solidifies in the die cavity. It is dependent on the quality requirements placed on the part. The specific casting pressure results from the plunger diameter and the hydraulic pressure in the working cavity of the plunger.
Hydraulic pressure	Hydraulic pressure required to achieve the specific casting pressure. This pressure is dependent on the value of the specific casting pressure.
Nitrogen pressure	The nitrogen pressure is calculated as a factor of the hydraulic pressure reading. It is the pressure of the nitrogen when filled into the hydraulic accumulator. The nitrogen pressure must be matched to the hydraulic pressure. Hydraulic pressure x 0.8 = nitrogen pressure
Locking pressure	Hydraulic pressure in locking cylinder providing the required locking force via the toggle lever system.
Die protection pressure	Hydraulically adjustable "low pressure" to protect the die surface during the locking movement.







Empfehlung für die Bodenbeschaffenheit zur Maschinenaufstellung

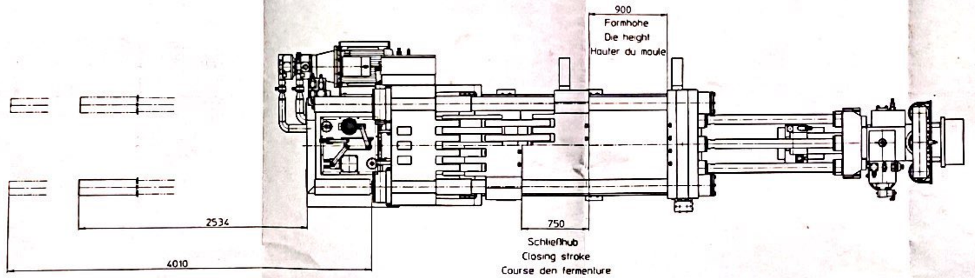
- Gebrauchsfertiger Industrieboden auf Zementbasis (Hartstoffbeton oder Hartstoffestrich) für starke Beanspruchung
- Hohe Widerstandsfähigkeit gegen statische und dynamische Kräfteeinwirkung Beanspruchungsgruppe schwer (DIN 18560, Teil 7)
- rutschfest
- wasserundurchlässig
- Widerstandsfähig gegen Öl, Benzin, Benzole, Frost, HFC
- Oberflächendicht

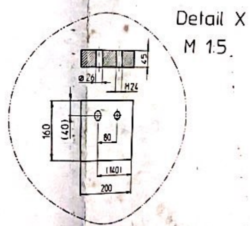
Recommentation for the condition of the floor for machine installation

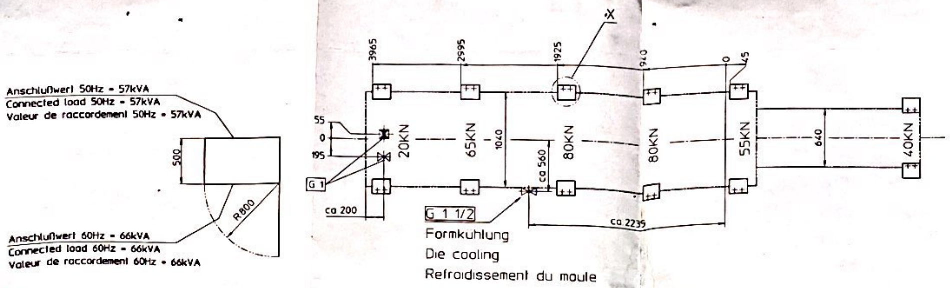
- Industrial floor on cement basis (hardconcrete or hard store floor) for heavy use
- High resistence against static and dynamic forces group of use: heavy (DIN 18560, sect. 7)
- ~~nonslip~~
- impervious against water
- resistant against oil, gasoline, benzole, frost, HFC
- surface tight

Recommendation pour characteristiques du sol l'implantation de machine

- Sol fini de qualité industrielle sur base cimente pour charges lourdes
- Grande résistance contre efforts statiques et dynamiqués Classement lourds (DIN 18560, partie 7)
- Anti - dérapant
- Etanche à l'eau
- Résistant aux hydrocarbure, à la geleê, aux liquides HFC
- Etanche en surface







Foundation drawing without guards
Plan de fondation sans capotage

Symbole - Symbols - Symboles

Kühlwasserzulauf
Connection of cooling water
Raccord eaux de refroidissement

Kühwasserablauf
Connection of waste water
Raccord eaux usees.

Fundamentbelastung ca. 340 K
Foundation load approx.
Charge des fondation environ

	DAK 580-62	DAK 580-54	DAK 580-40
I	613	733	724
H	3297	3176	2985
G	4370	4370	4370
F	770	770	770
E	610	610	610
D min	2859	2858	2620
D max	3139	3138	2830
C	1465	1465	1465
B	1157	1156	1100
A	1895	1775	1595

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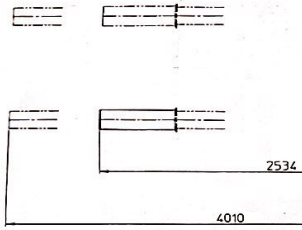
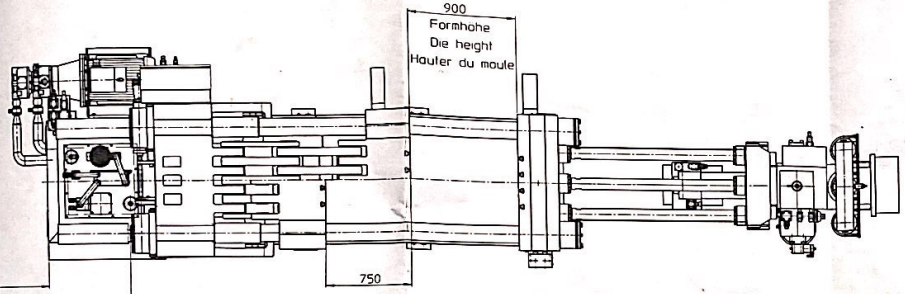
Fundamentplan

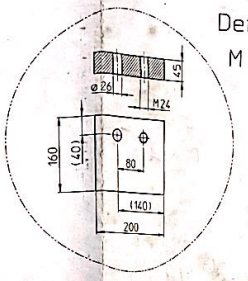
ohne Abdeckung ab Serie 1739

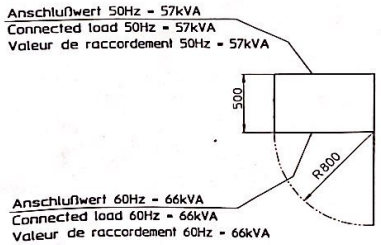
DAK 580-**
Standard

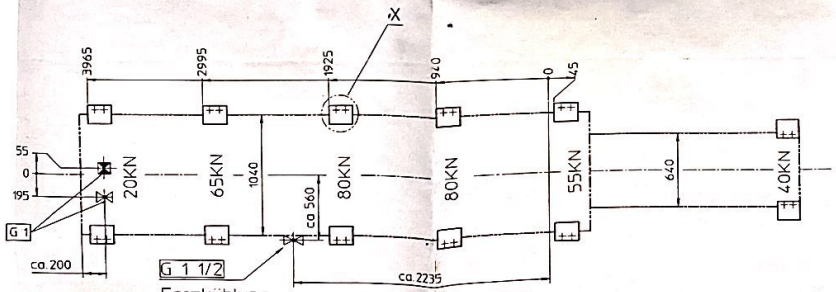
0.003.359.40











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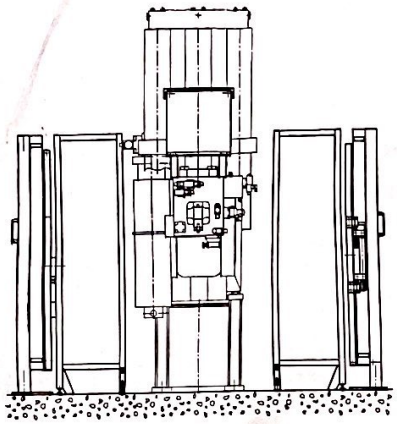
	DAK 580-62	DAK 580-54	DAK 580-40

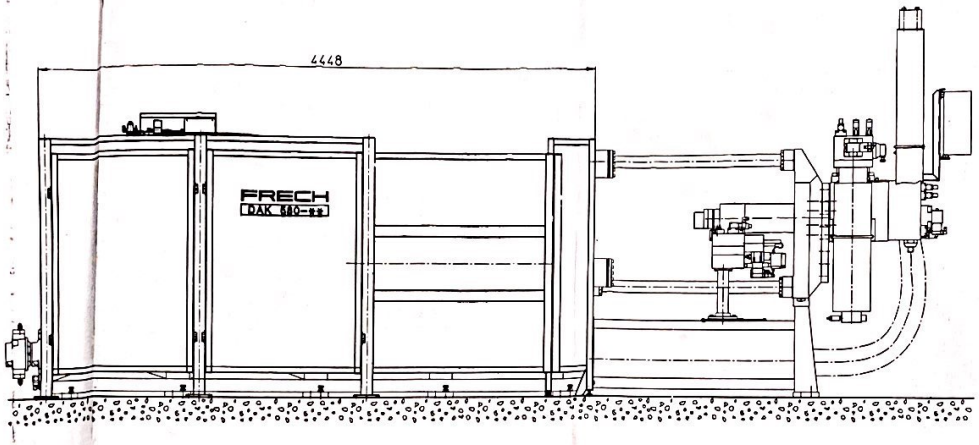
Foundation drawing without guards
Plan de fondation sans capotage

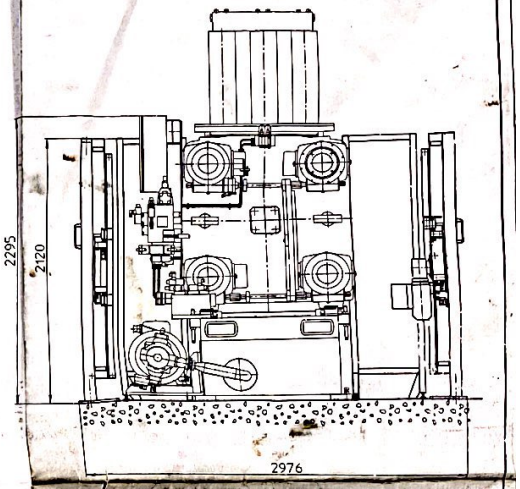
Fundamentplan
ohne Abdeckung ab Serie 1739

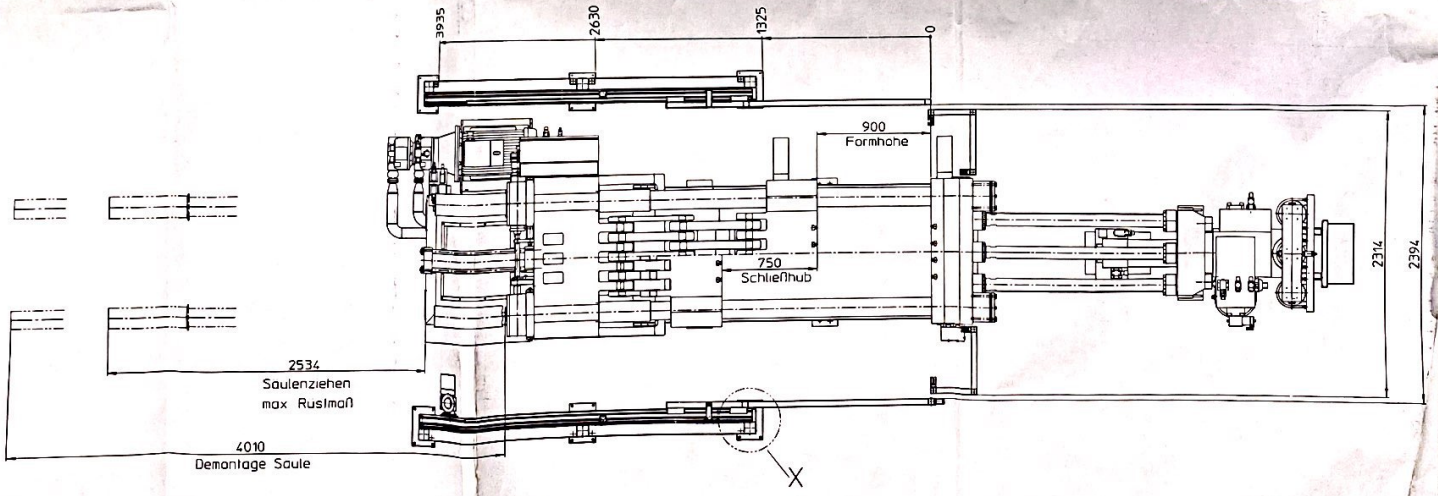
DAK 580-**
Standard

0.003.359.40









Einzelheit X
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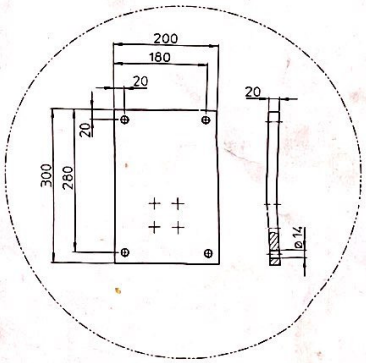

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	09.08.2000 / 02		

Fundamentplan

mit Abdeckung ab Serie 1739

DAK 580-62/54

Standard

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