2.5 TECHNICAL DATA (subject to modification without notice)

BÜHLER

Horizontal Cold-Chamber Die Casting Machine H-630B/Version 6.0

Locking force (strain gauge tested)	kN	7250
Injection force, consolidation phase (adjustable)	kN	650 x 265
Plunger stroke	mm	580
Shot positions (standard)	mm	0, -50, -300, -350
Ejection force	kN	340
Ejector stroke (adjustable)	mm	175
Dimensions of fixed die platen (H x V)	mm	1210 x 1410
Dimensions of moving die platen (H x V)	mm	1210 x 1210
Clearance between the tie bars	mm	780 x 780
Diameter of tie bars	mm	150
Die height min.	mm	300
Die height max.	mm	950
Stroke of moving die platen	mm	780
Rated installed power	kW	45
Machine area L x W (incl. safety gate)	m	8.9 x 2.8
Machine height	m	3.1
Machine weight, ready for production	kg	28500
DATACESS control cabinet L x W x H	m	2.0 x 0.5 x 2.39
and DATACESS power cabinet L x W x H	m	0.8 x 0.5 x 2.0

Production data

Plunger diameter	mm	60	70	80	90	100	110	120
Theoretical shot volume (DIN 24480)	cm3	1093	1488	1944	2460	3035	3674	4373
Max. shot weight for Al*	kg	3.0	4.2	5.5	6.9	8.5	10.3	12.3
Max. specific injection pressure	bar	2300	1690	1293	1021	828	684	574
Max. projected area**	cm2	315	429	560	710	875	1060	1263

* The max. shot weight is calculated as follows:
plunger stroke x plunger area x 0.75 x density

Density of g/cm3	Al	Zn	Mg	Cu
	2.5	6.25	1.63	8.0

** Max. theoretical projected area at max. specific injection pressure, without consideration of core locking and dynamic part of injection process.

2.6 OPERATING DATA (subject to modification)

10 Die mounting platens

- Smallest permissible die-mounting dimensions ...mm 620 x 620
- Maximum permissible surface pressure..... N/mm2 100

11 Effective plunger stroke .....mm 555

12 Electrical data

- Total connected load of die-casting machine with control system .....kW 47.2
- Total connected load of die-casting machine with control system and simultaneous core movement.. kW 51.2
- Voltage fluctuation max. ..... % ± 10
- Protection class (DIN 40050) ..... IP 55
- Maximum permissible ambient temperature for control cabinet with cooler .....°C 55

Note: The lower the temperature is in the control cabinet, the smaller the probability of failure of electronic components.

20 Hydraulic system

21 Maximum system pressure ..... bar 160

22 Hydraulic fluid according to
GEA-95633 (HFC-Hydraulic fluid) or
GEA-95632 (HLP-Mineral oil)
Filling quantity dm3 1240

30 Pneumatic system

31 Maximum operating pressure ..... bar 5

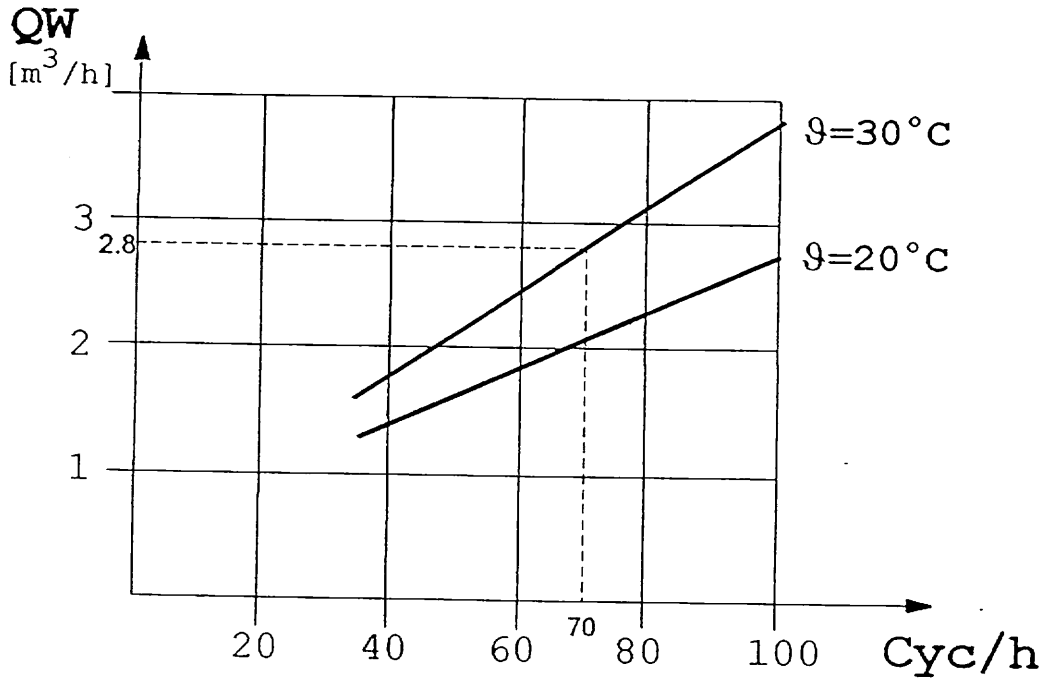
32 Data for a pneumatically actuated safety gate:

- Maximum compressed air requirement ..... Nl/min 43
- Adjusted operating pressure ..... bar 4

33 Maximum compressed air requirement
for mechanical die scotch ..... Nl/min 1.06

34 Lubricating oil acc. to GEA-95623. Contents of tank for each pneumatically actuated safety gate approx. dm3 0.5

Fig. 2.1.1



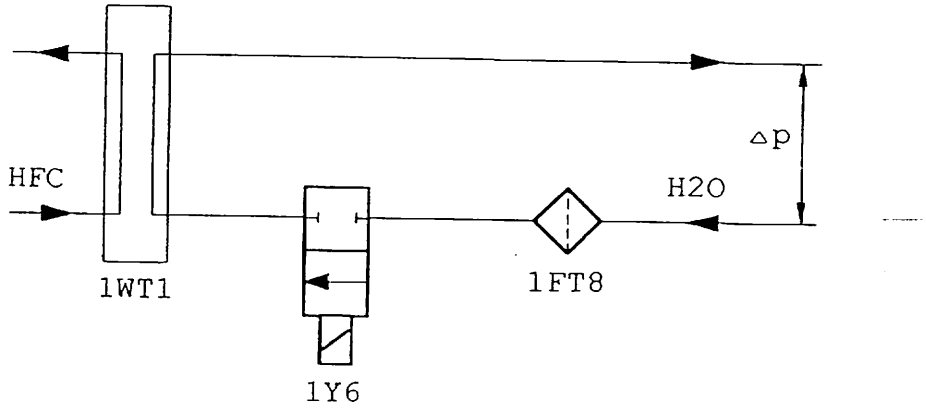
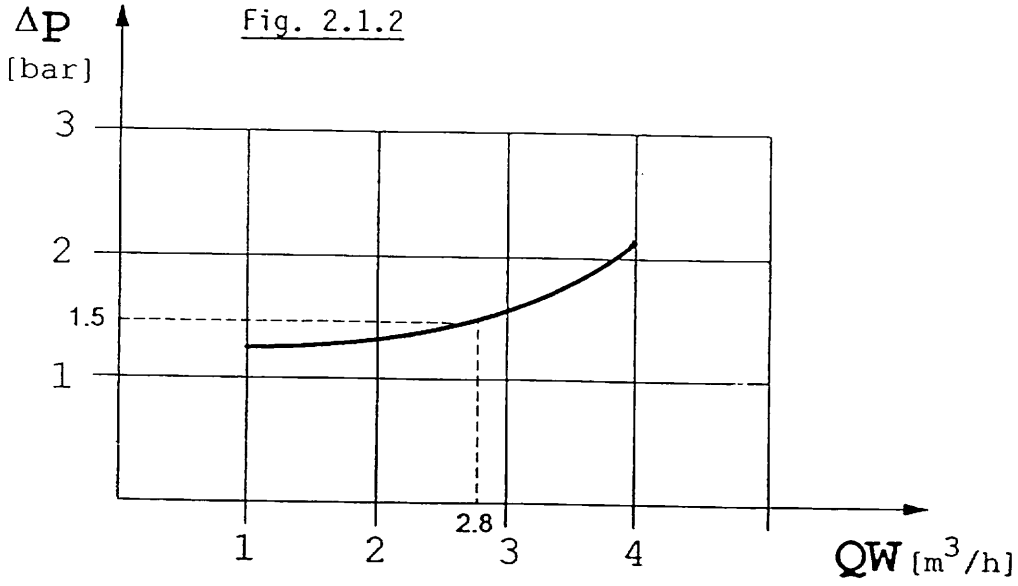


Fig. 2.1.2



40 Cooling water consumption

41 Cooling water consumption of the heat exchanger

Legend to Fig. 2.1.1 and Fig. 2.1.2

1FT8	strainer
1WT1	heat exchanger
1Y6	solenoid valve
Cyc/h	machine cycles / h
delta p	pressure drop
H2 O	cooling water
HFC	less inflammable hydraulic fluid HOUGHTO-SAFE 620 at an operating temperature of 42°C in the hydraulic tank
QW	water quantity

theta = 20°C water inlet temperature

theta = 30°C water inlet temperature

Cooling water consumption to be determined with the aid of Fig. 2.1.1.

Example for reading

Water inlet temperature (theta)	= 30°C
Machine cycles / h (Cyc/h)	= 70
required quantity of water (QW)	= 2.8 m3/h

Determine pressure loss (delta p) with the aid of Fig. 2.1.2

Check if the available water pressure is higher than delta p and thus if the required quantity of water is obtained.

42 Cooling water consumption of die and shot sleeve

As the wall thickness of castings varies, it is practically impossible to determine the cooling water consumption for the dies accurately.
According to a rough rule of the thumb the die and the shot sleeve require four times as much cooling water as the heat exchanger.

50	Nitrogen system (shot end)		
51	Maximum filling pressure	bar	135
52	Capacity of pressure accumulator total	l	175
	Use only pure nitrogen (N_2 more than 99,99 vol. %).		
	Required nitrogen volume for filling the empty system to maximum filling pressure		
	4 storage bottles containing each	l	45
	Filling pressure	bar	200
55	Nitrogen system (Simultaneous movement of cores)		
56	Maximum filling pressure	bar	70
57	Capacity of pressure accumulator total	l	20
	Use only pure nitrogen (N_2 more than 99,99 vol. %).		
	The storage bottles, Section 50, suffice for filling also this system		
60	Central lubrication		
	Central lubrication oil according to GEA-95649		
	Tank capacity	dm3	2.7
70	Automatic Buhler plunger lubrication		
	Lubricant according to GEA-95725		
	Tank capacity GED-2.....	dm3	5
	or tank capacity GED-3.....	dm3	10

2.7 EMISSIONS (subject to modifications)

2.7.1 Noise

- Noise from the pumps, depending on the machine load, during operation.

- Noise from the plunger during die casting procedure.

See "Noise level of die casting machine" (DIN 45635), page 2/27.

2.7.2 Emission of vapours and smoke

The spraying of the die-casting die causes vapours and smoke. The intensity of this vapour and smoke emission depends on the type and quantity of used spraying agent and on the die temperature. For detailed information please contact your supplier of spraying agents.
The limit values for health injurious particles in the air, e.g. MAK values (standards on maximum particle concentration at working area), must be observed. Please refer to local regulations. Normally the local regulations can be met by installing suction hoods above each die-casting machine or by means of a ventilation and filtering system for the foundry. Our department for Systems Engineering can give you the necessary advice.

2.7.3 Environment and health endangering fluids

Environment and health endangering fluids could be for example, hydraulic fluids, lubricants and spraying agents. These liquids are either collected in the oil collecting tray (see 3.3.2, Paragraph 3.1) or escape into the atmosphere in the form of vapour or smoke, after having passed the filtering system (see 2.7.2).
The hydraulic fluids, lubricants and spraying agents which are collected in the collecting tray have to be disposed of in accordance with the local regulations (deposits for waste oil or special refuse). Details on the composition of the used hydraulic fluids, lubricants and spraying agents can be acquired from your suppliers.

2.7.4 Water for industrial use

Industrial water is needed for cooling the hydraulic fluid, the die and the shot end and may be contaminated with environment and health endangering components.
Normally industrial water is used in a closed circuit with integrated water treatment systems. However, if industrial water is lead into the sewage system after having been used for cooling purposes, a water cleaning system will be required. Enquire at the local authorities which quality requirements the industrial water has to meet before it is lead into the sewage system.