

TOOLS CHANGER FOR MACHINE TOOL

HAWE SOLUTION FOR THE TOOLS CHANGER

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INTRODUCTION

A very important option in a Machine Tool is the Tool Changer.

Generally, a hydraulically actuated tool changer consist of small clamping cylinders and a couple of motors to move the chains. This means that usable volumen required is little, pressure in the system should be constant and enough flow for the required speed is needed.

In the Hawe solution, pump-acumulator solution, pump is giving flow while changing the tool and the acumulator maintains the pressure when machining, tool changer in stand by.

The hydraulic power packs for these changers are normally big ones ($V \cong 75...100$ l.) and are provided with a group for oil cooling.

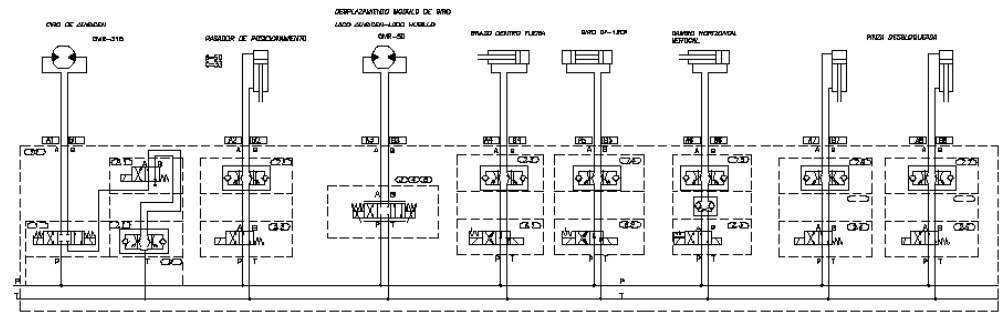
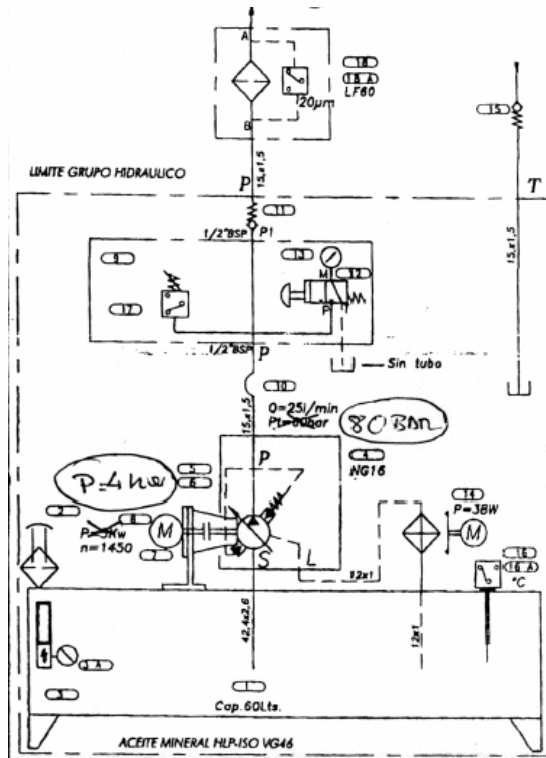
The HAWE technology allows to make this function with little groups ($V \cong 5...10$ l.) without additional cooling systems.

Advantages of the HAWE power packs in the changers:

- Possibility of integrating the hydraulic power pack in the changer.**
- Saving time in handling and assembling.**
- Saving weight and space in the machine.**
- Saving oil. (aprox. 1,26 €/liter)**
- More modular elements in the machine.**

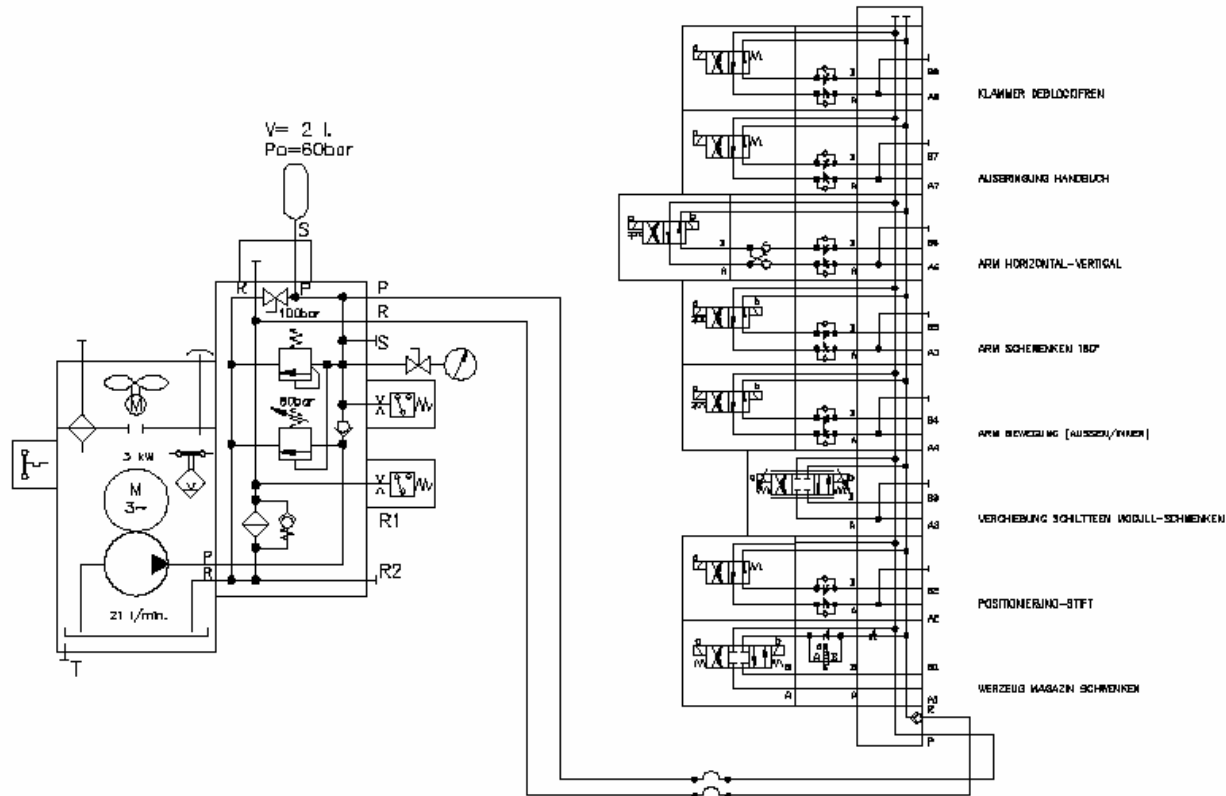
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Typical hydraulic scheme for a tool changer



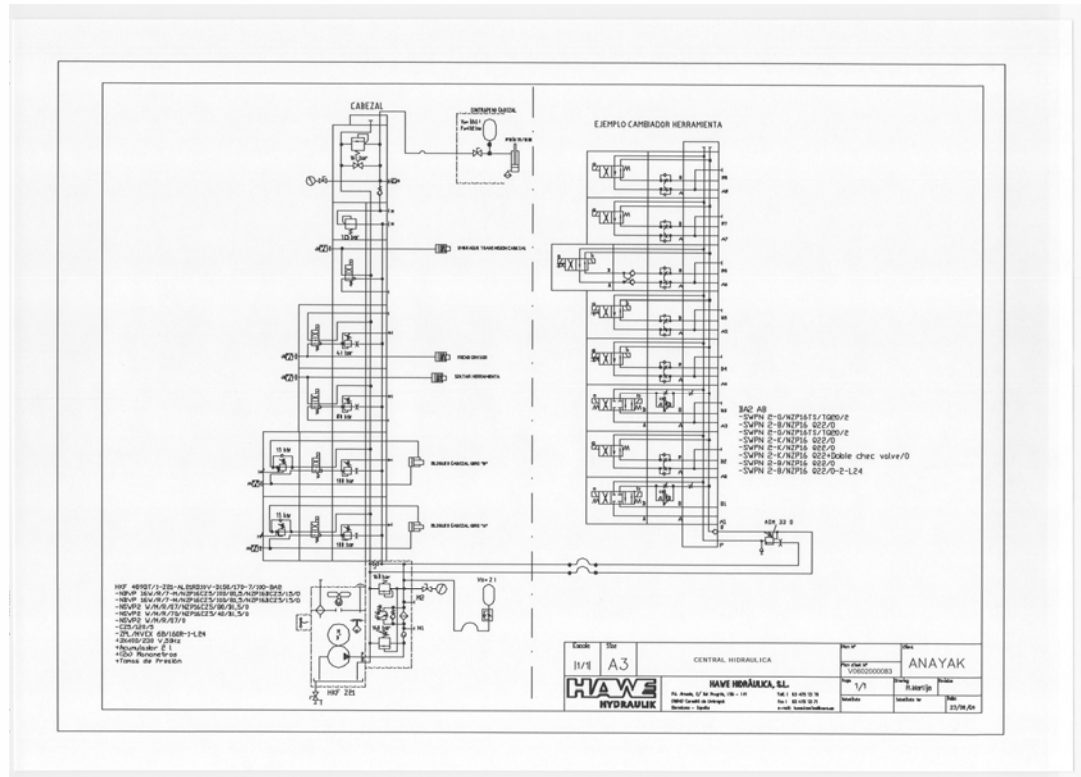
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HAWE Solution for the Tool Changer



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HAWE Solution for the Tool Changer + Clamping module of the head and the tool



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Comparing Solutions of Hawe-Competitors (Power Pack)



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Comparing Solutions of Hawe-Competitors

Features of the HAWE power pack:

- Triphasic motor 3 x 400/230 v, 50 Hz. - 3 kW.
- Gear Pump constant flow: 21 l/min.
- Work pressure: 80 bar
- Tank: 9 l., 5,5 l/useful.
- Approximate dimensions: 445x240x635
- Accumulator 2 l.

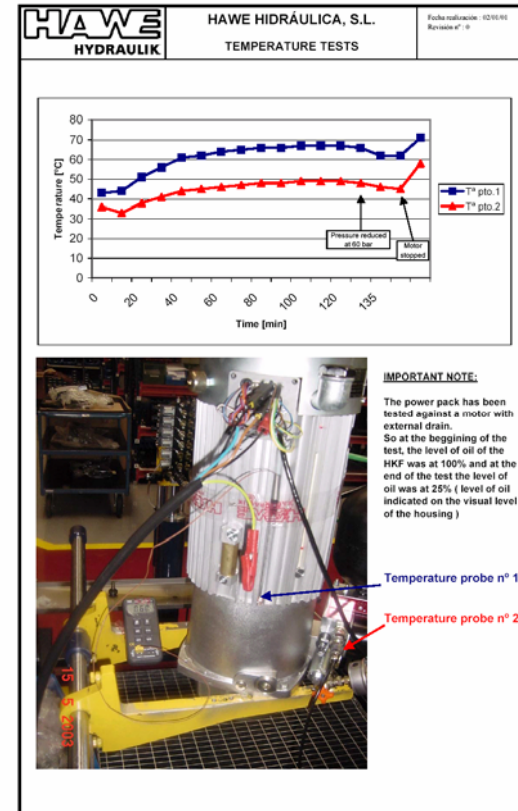
Features of the Competitor power pack:

- Triphasic motor 3 x 400/230 v, 50 Hz. - 4 kW.
- Blades pump variable flow.: 25 l/min.
- Work pressure: 80 bar
- Tank: 100 l.
- Approximate dimensions: 633x474x850
- Cooling 38 W.

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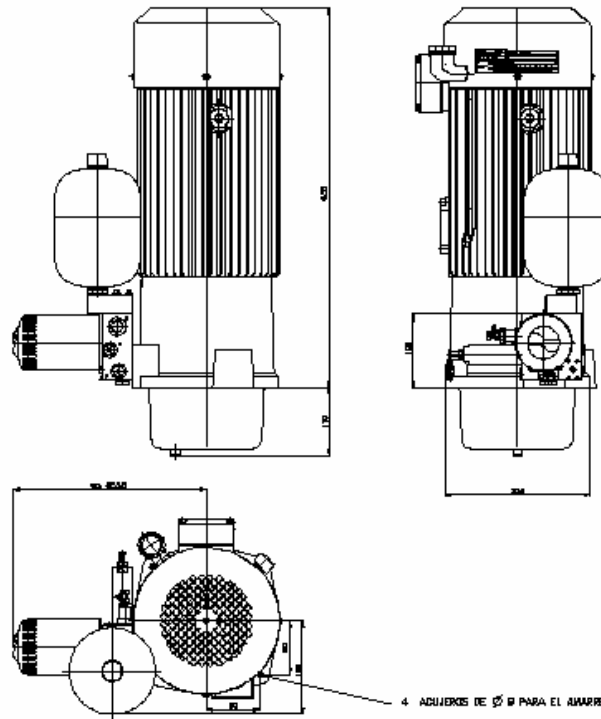
Temperature data obtained under extreme conditions (function 100% ED)

HAWE HYDRAULIK		HAWE HIDRÁULICA, S.L.	Fecha realización: 02/05/05 Revisión nº: 0	
		TEMPERATURE TESTS		
Customer:			Date: 14 / 05 / 2003	
Reference :	HKF 489DT/1-Z21-AL21F3-F80/100-7/50- BA2-8-AC2001/60-3x400/230V, 50 Hz Man. 0...160 bar c/Llave, lnd Colmataje		Quantity: 1 Fabr. Nº: _____	
Test conditions:				
Flow:	21 l/min	Ambient temperature:	20°C	
Pressure:	78 bar			
Beginning:	13:00	End test:	17:00	
Testing point 1:	Temperature probe on the housing of the HKF (externally)			
Testing point 2:	Temperature probe on the port R1 (internal return line)			
Valores Obtenidos:				
Time [min]	Ambient T [°C]	Temp. 1 [°C]	Temp. 2 [°C]	Observations
0	20	25	22	78 bar
3	20	33	26	
10	20	40	31	
17	20	45	34	Stop working
1 hour stopped				
0	20	43	36	78 bar
10	20	44	33	
20	20	51	38	
30	20	56	41	
40	20	61	44	
50	20	62	45	
60	20	64	46	
70	20	65	47	
80	20	66	48	
90	20	66	48	
100	20	67	49	
110	20	67	49	
120	20	67	49	
125	20	66	48	Pressure reduced at 60 bar
135	20	62	46	
150	20	62	45	
20	71	58		Motor of the HKF... stopped



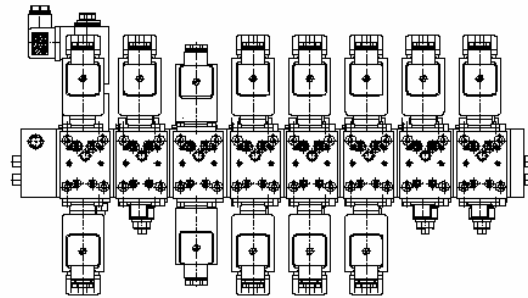
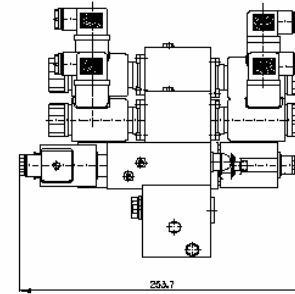
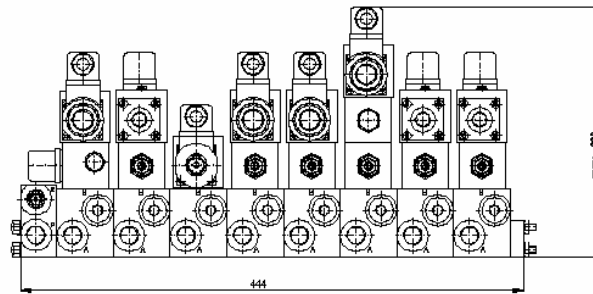
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Hydraulic power pack offered by Hawe



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Valves block Cetop 03 HAWE



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Example of machine installation



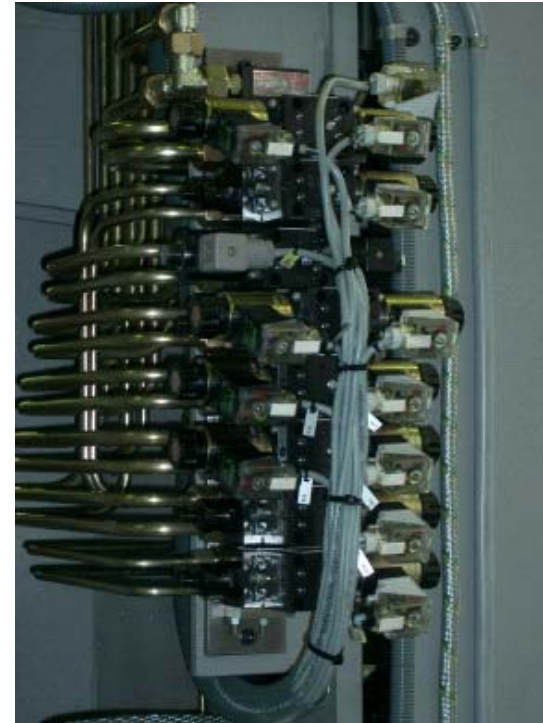
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Example of machine installation



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Example of machine installation



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MANUFACTURERS

- AITEK
- SIDEPALSA

NATIONAL USERS

- SORALUCE
- ANAYAK
- MTE
- JUARISTI
- ZAYER
- IBARMIA
- M.TORRES
- CME
- NICOLAS CORREA
- GORATU

GERMAN USERS

- UNION
- AUERBACH
- DS TECHNOLOGY

*USER (Manufacturer of the machine tool who buys the tool changer)