

# Proportional pressure relief valves

## Type PDB-6I

NG 6 ISO

up to 25 l/min, up to **700 bar**

### Features

- Directly operated with wide useful range
- Pilot operated for high flow rate
- High degree of pressure stability
- Linear pressure-current characteristic
- External tank connection option with automatic disconnection of the directly operated valve from the system tank line



### Applications

Electrical control of supply or working pressure in open or closed control loop:

- remote pressure setting
- maintaining pressure within small limits, independent of disturbance
- generating any pressure time curves
- Pre-relief of large volumes

### Design

- Easy-running proportional solenoid with 360° rotatable and replaceable plug-in coil
- Low friction, direct force transmission to the valve needle
- Manual override for manual function test
- The pilot operated valve consists of the direct operated valve, main stage and end plate
- The orifices of the main stage are easily exchangeable

### Technical data

Hydraulic fluid	mineral oil according to DIN 51524 (other fluids on request)
Fluid temperature range	- 20 bis 80 °C
Ambient temperature range	- 30 to 50 °C
Viscosity range	5 to 400 mm <sup>2</sup> /s
Porting	NG 6 according to DIN 24340 / ISO 4401 / CETOP RP 121 H
Nominal pressure stages	315 bar, 400 bar, 550 bar, 700 bar
Max. operating pressure connection P, A, B	700 bar
Max. operating pressure connection T	70 bar
Max. flow rate	directly operated: 8 l/min / pilot operated: 25 l/min
Filtration (recommendation)	according to NAS 1638 class 6 or ISO/DIN 4406 17/15/12
Duty cycle DC	100%
Solenoid voltage (nominal resistance)	24 VDC (5 Ohm)
Degree of protection	IP 65 according to EN 60529 / DIN 40050
Weight	directly operated: 2 kg / pilot operated: 3 kg
Dither frequency (recommendation)	60 - 400 Hz
Hysteresis	≤5% with optimal dither signal
Material	valve body: stainless steel Solenoid coil: ZnNi-plated (1000 h salt spray test)

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### Type code

**Example**      PDB - 6I - P - 400 - 8 - 24 - V - C      00

<b>Proportional pressure relief valve</b>										<b>Design</b> 00 ... 99 For internal purposes
<b>Nominal size</b> <b>Connection ISO</b>	6 ... ... I									
<b>Pressure relief</b>	P	In connection P								<b>Index</b> Please leave blank For internal purposes
<b>Nominal pressure stage</b>	315 bar 400 bar 550 bar 700 bar									
<b>Max. flow rate</b>	8 l/min    directly operated 25 l/min    pilot operated									
<b>Control method</b>	24	solenoid 24 VDC								
<b>Seal material</b>	V      FKM other seal materials on request									<b>Design revision</b> For internal purposes

## Product information

Max. operating pressure	315 bar	400 bar	550 bar	700 bar
Max. flow rate	8 l/min			
Part No.	4487130	4487227	4487226	4487214
Symbol				
Max. flow rate	25 l/min			
Part No.	4590611	4590612	4590613	4590614
Symbol				

\* Internal check valve ensures automatic disconnection of the system tank line when using the side tank outlet

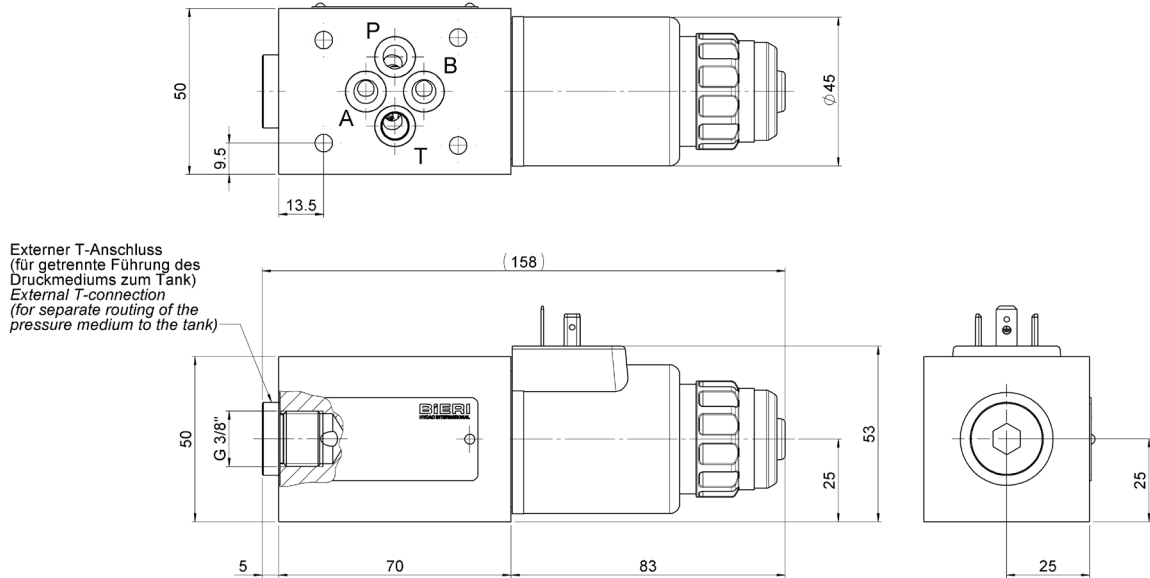
\*\* Plug (3778885) enclosed loose. Only install if the external tank connection of the main stage is used.

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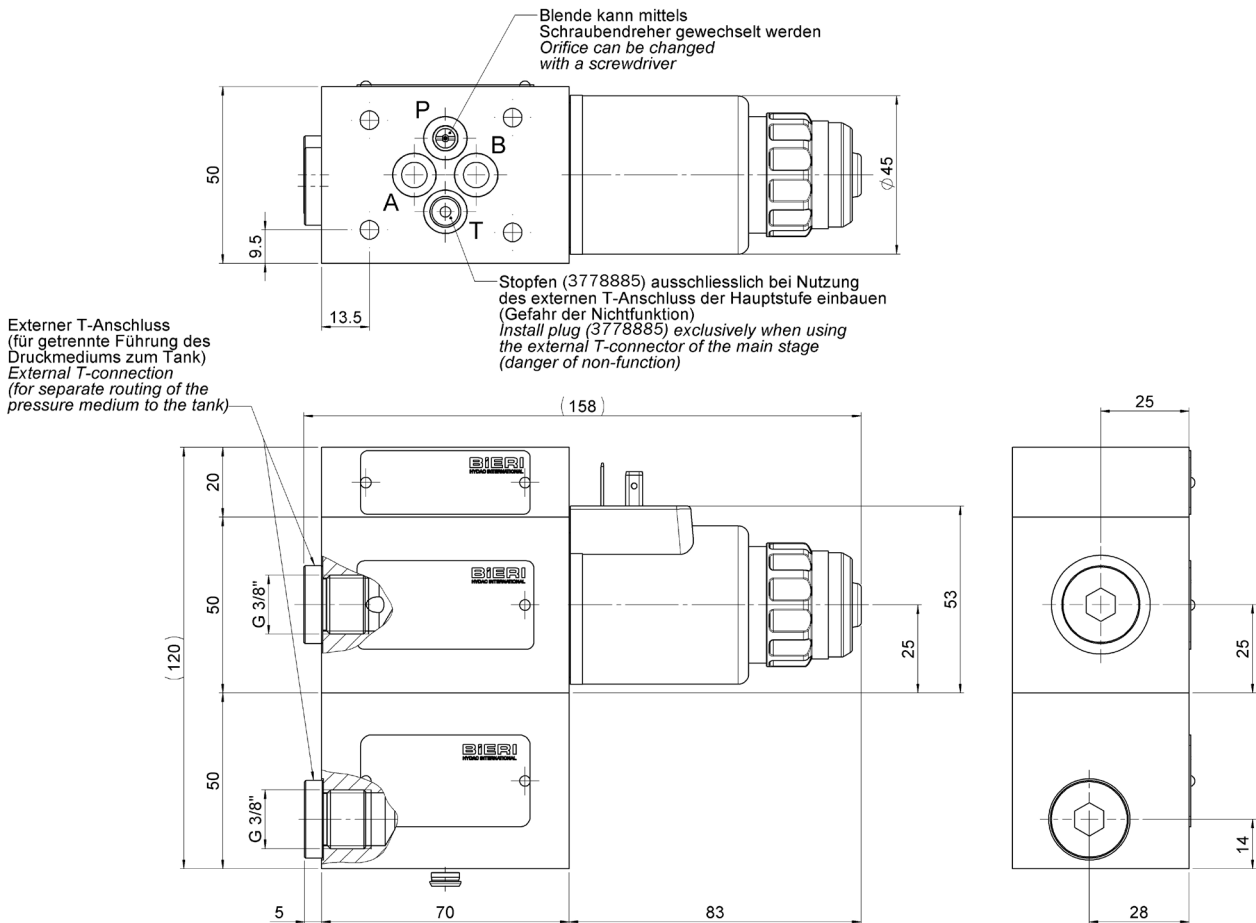
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## Dimensional drawings

### Directly operated



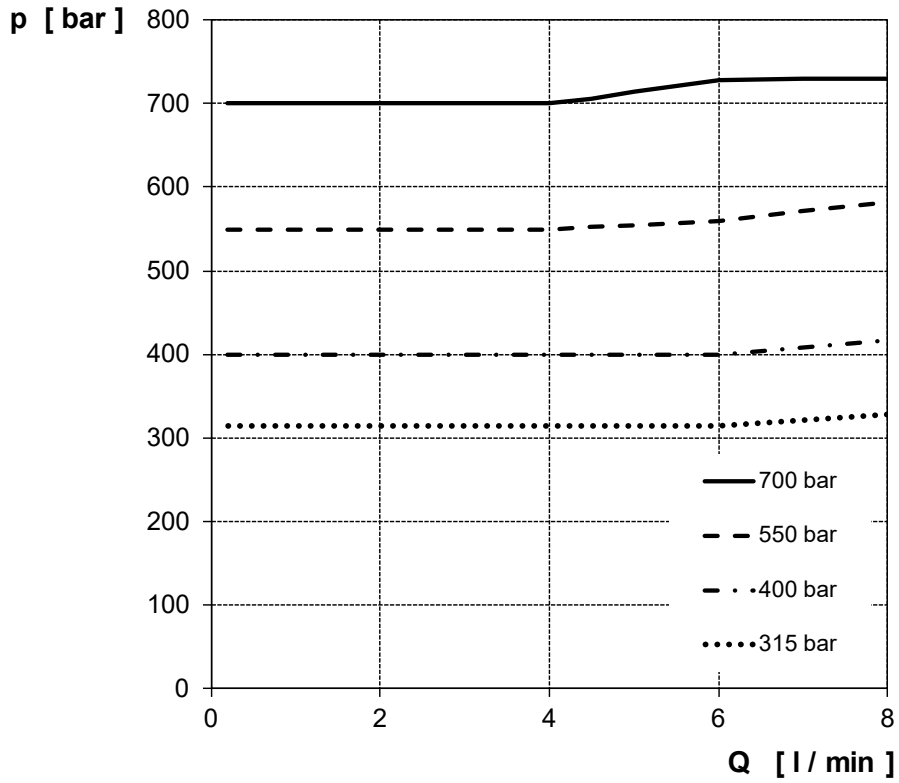
### Pilot operated



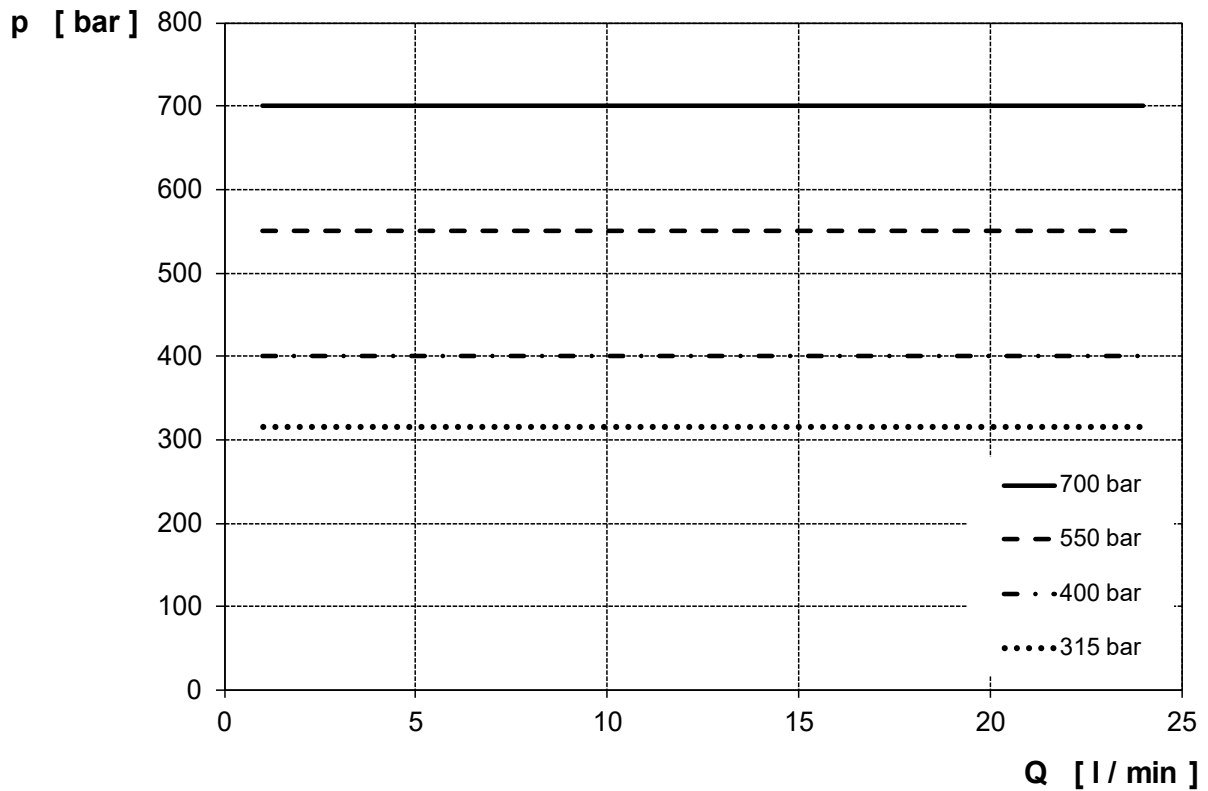


### Pressure p(Q, nominal pressure stage)

Directly operated

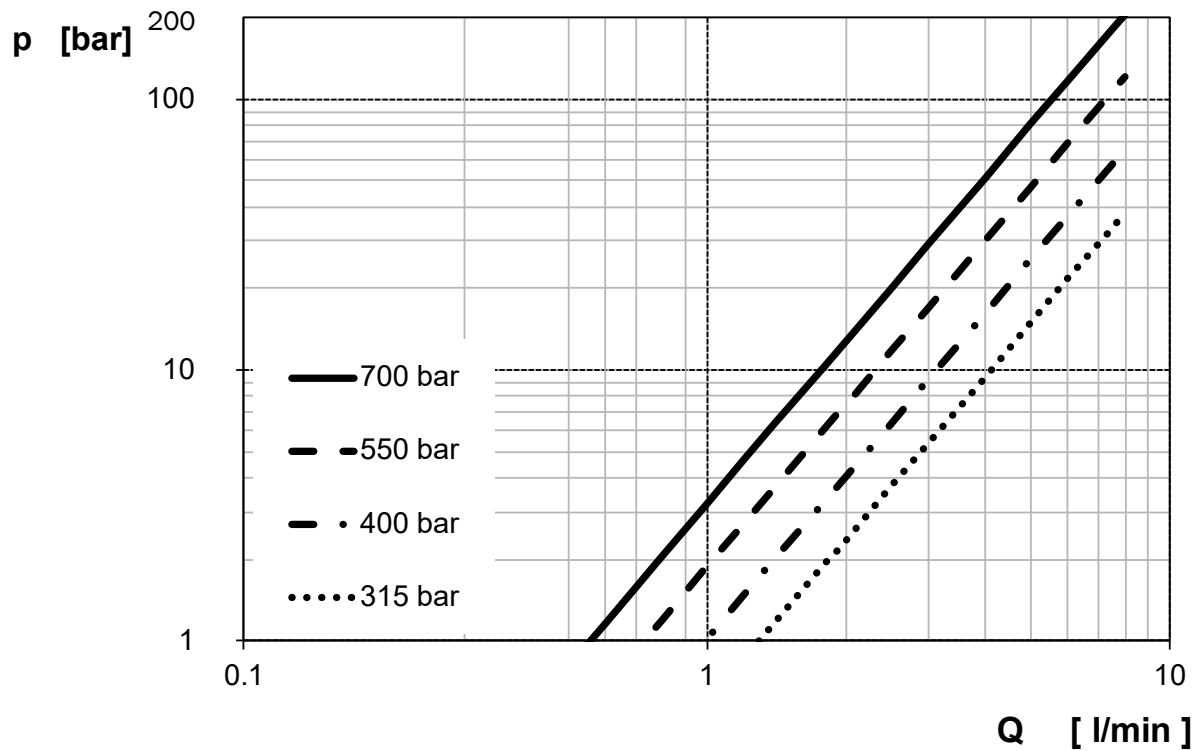


Pilot operated

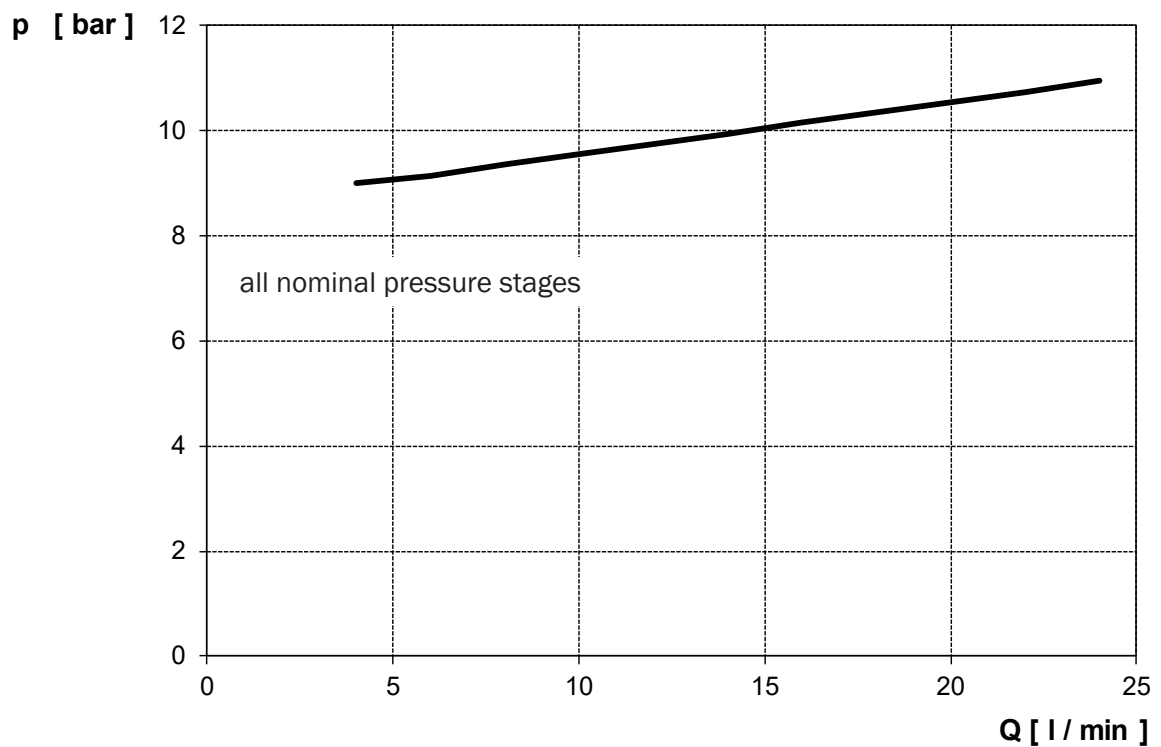


**Minimum pressure  $p_{min}(Q, \text{nominal pressure stage})$**

**Directly operated**



**Pilot operated**

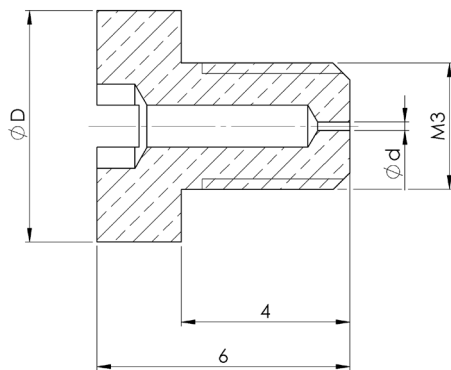


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**Accessories**

Part description	Type code	Part No.
Screw-in orifice $\varnothing$ 0.2 (for mounting in the P connection)	BL700-6-D5,5-0,2-A*00	3688087
Screw-in orifice $\varnothing$ 0.3 (for mounting in the P connection)	BL700-6-D5,5-0,3-A*00	3985507
Screw-in orifice $\varnothing$ 0.4 (for mounting in the P connection)	BL700-6-D5,5-0,4-A*00	3891841
Screw-in orifice $\varnothing$ 0.5 (for mounting in the P connection)	BL700-6-D5,5-0,5-A*00	3688099
Screw-in orifice $\varnothing$ 0.6 (for mounting in the P connection)	BL700-6-D5,5-0,6-A*00	3985546
Screw-in orifice $\varnothing$ 0.7 (for mounting in the P connection)	BL700-6-D5,5-0,7-A*00	3985547
Screw-in orifice $\varnothing$ 0.8 (for mounting in the P connection)	BL700-6-D5,5-0,8-A*00	3985549
Screw-in orifice $\varnothing$ 0.9 (for mounting in the P connection)	BL700-6-D5,5-0,9-A*00	3985550

**Dimensional drawing****Symbol**

Part description	For valve type	Part No.
1 x Plug for solenoid grey	all	6132484
1 x Plug for solenoid black	all	3728850
4 x Socket head screw ISO 4762-M5 x 60-12.9	directly operated	4576469
4 x Tie bolt, M5 x 152-12.9	pilot operated	4455766
4 x Special hexagonal nut-M5 x 2d-12	pilot operated	4455768

For pressure relief valves see technical data sheet DB500/700/1000.  
Other mounting screws, tie bolts and subplates see technical data sheet AP700/RP700/EP700.

**Spare parts**

Part description	For valve type	Part No.
4 x O-ring, 9.25 x 1.78, FKM	all	4455692
1 x Plug (when using external T-connection)	all	3778885
1 x Solenoid coil 24 VDC	all	4356848
1 x Pole tube nut	all	914559
1 x O-ring for pole tube nut	all	616992
1 x Plug for external T-connection	all	613141



## Electronic controllers (available from HYDAC)

### Open loop control (without actual system pressure feedback)

- manual adjustment of the actual pressure
- pressure adjustment with manual operated potentiometer or PLC-control

### Closed loop control (with actual system pressure or force feedback)

- for automatic adjustment of system pressure to the pre-selected pressure
- for pressure setting with PLC, manual operated potentiometer or via BUS-system

### Electronic selection table

design	HYDAC Part No.	HYDAC ordering code	amplifier mode („open loop control“)	controller mode („closed loop control“)	setpoint signal 0 ...10 V	setpoint signal 4 ... 20 mA	coupling via iO-Link	oscilloscope function	resolution (% current range)	solenoids in sectable form indep.	status monitoring control range	accessoires for the parameterization
Amplifier connector	6112594	EHCD-AP011XXXD	•		•			•	0,1	1		Interface box for amplifier connector (HYDAC - EHCD-APIFB) = 6108514
	6108508	EHCD-AP012XXXD	•			•		•	0,1	1		
Snap in module according EN50022	6158999	EHCD-AM005XXXU	•		•	•		•	0,01	2		USB-cable Typ B (Standard printer cable) 6249389
	6174133	EHCD-CUPREXAXPA	•	•	•	•		•	0,006	1		
	6174135	EHCD-CUPREXHXP	•	•	•	•		•	0,0025	1	•	
	6269387	EHCD-CUPR2LAXPA	•	•			•		0,01	2		

## Safety

We recommend to operate the proportional pressure relief valves only in combination with a separate pressure relief valve to limit the pressure to the max. allowed value.

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The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.