

Technical data



NORD brake rectifiers		
	Technical data	
Bridge rectifiers	GVE20L/V	
Rated voltage	230V _{AC}	
Max. permissible voltage range	110V...275V+10%	
Output voltage	205V _{DC} ($U_{DC} = U_{AC} \times 0.9$)	
Rated current up to 40°C	2.0A	
Rated current up to 75°C	1.0A	
DC switch-off	by external contact or current measuring relay possible	
Half-wave rectifier	GHE40L/V	GHE50L/V
Rated voltage	480V _{AC}	575V _{AC}
Max. permissible voltage range	230V...480V+10%	230V...575V+10%
Output voltage	216V _{DC} ($U_{DC} = U_{AC} \times 0.45$)	259V _{DC} ($U_{DC} = U_{AC} \times 0.45$)
Rated current up to 40°C	2.0A	2.0A
Rated current up to 75°C *	1.0A	1.0A
DC switch-off	by external contact or current measuring relay possible	
Brief bridge rectification then half-wave rectification	GPU20L/V	GPU40L/V
Rated voltage	230V _{AC}	480V _{AC}
Max. permissible voltage range	200V...275V+/-10%	330V...480V+/-10%
Output voltage	104V _{DC} ($U_{DC} = U_{AC} \times 0.45$)	216V _{DC} ($U_{DC} = U_{AC} \times 0.45$)
Rated current up to 40°C	0.7A	0.7A
Rated current up to 75°C *	0.5A	0.5A
DC switch-off	is carried out automatically internally! This is deactivated via bridge 3-4.	
Brief bridge rectification then half-wave rectification	GPE20L/V	GPE40L/V
Rated voltage	230V _{AC}	480V _{AC}
Max. permissible voltage range	200...275V+/-10%	330V...480V+/-10%
Output voltage	104V _{DC} ($U_{DC} = U_{AC} \times 0.45$)	216V _{DC} ($U_{DC} = U_{AC} \times 0.45$)
Rated current up to 40°C	0.7A	0.7A
Rated current up to 75°C *	0.5A	0.5A
DC switch-off	by external contact or current measuring relay possible	

* Normally installation of the rectifier in the motor terminal box is permissible. In the case of greater thermal loads or higher currents the rectifier must be mounted outside of the terminal box e.g. in a separate terminal box on the the fan cover or in the control cabinet.



Brake connection voltages

The brakes are available with the following coil voltages:

24VDC, 105VDC, **180VDC**, **205VDC**, 225VDC, 250VDC (preferred voltages are printed bold.)

Supply voltage [V _{AC}]	Standard rectifie			
110 - 128	GVE20			
180 - 220		GVE20		
205 - 250			GVE20	
210 - 256	GHE40			
225 - 275				GVE20
360 - 440		GHE40		
410 - 480			GHE40	
410 - 500			GHE50	
450 - 550				GHE50
Coil voltage (Brake) [V _{DC}]	105	180	205	225

Supply voltage [V _{AC}]	Quick release - quick switching rectifie			
200 - 256 (230)	GPU20 / GPE20			
380 - 440 (400)		GPU40 / GPE40		
380 - 480 (460)			GPU40 / GPE40	
450 - 480				GPU40 / GPE40
Coil voltage (Brake) [V _{DC}]	105	180	205	225

Supply voltage [V _{AC}]	Quick application - quick switching rectifie		
200 - 275 (200)	GPU20 / GPE20		
200 - 275 (230)		GPU20 / GPE20	
200 - 275 (250)			GPU20 / GPE20
Coil voltage (Brake) [V _{DC}]	180	205	225

Optimal values are printed bold



Brake switching times (average values, valid with nominal air gap)

Rectifie	V _{AC} Rectifie	V _{DC} Brake	Switch-off	[ms]																			
				BRE5		BRE10		BRE20		BRE40		BRE60		BRE100		BRE150		BRE250		BRE400			
				t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}	t _{tr}	t _{av}		
GHE 4...	230	103	AC	35	130	60	150	85	200	100	180	120	200	150	230	270	300	300	520	400	650		
GHE 4...	400	180																					
GHE 5...	500	225																					
GVE 2...	230	205																					
GHE 4...	230	103	DC extern	35	18	60	20	85	25	100	20	120	22	150	24	270	28	300	38	400	65		
GHE 4...	400	180																					
GHE 5...	500	225																					
GVE 2...	230	205																					
GPU 2...	230	205	DC intern	35	30	60	34	85	37	100	34	120	35	150	37	270	39	300	46	400	85		
GPU 2...	230	103																					
GPU 4...	400	180			18	35	24	40	38	45	55	40	70	42	85	44	120	48	140	58	180	95	
GPU 4...	480	225																					
GPE 2...*	230	103	DC extern	18	5	24	5	38	8	55	8	70	12	85	20	120	25	140	34	-	-		
GPE 4...*	400	180																					
GPE 4...*	480	225																					
GPE 2...*	230	103	DC IR	18	23	24	23	38	24	55	25	70	31	85	34	120	40	140	50	-	-		
GPE 4...*	400	180																					
GPE 4...*	480	225																					

* Brake with brass foil ⇒ B7

Definition

M_B = Braking torque

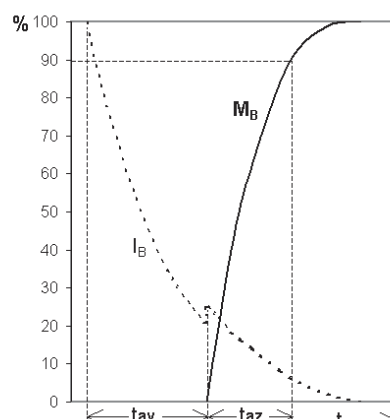
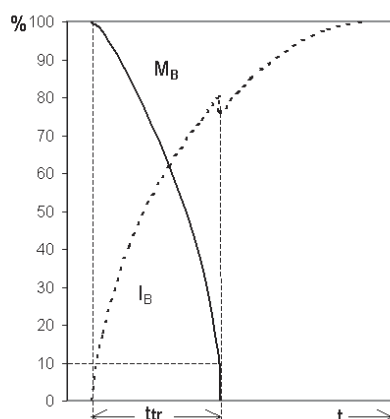
I_B = Coil current

t_{av} = Delay in brake application, time from switching off the current until the start of the increase in braking torque.

t_{az} = Build-up time. Time from the start of build-up of the braking torque until 90% of the nominal value is reached.

Among other things, the build-up time of the brake torque depends on the speed and can therefore only be roughly predicted.

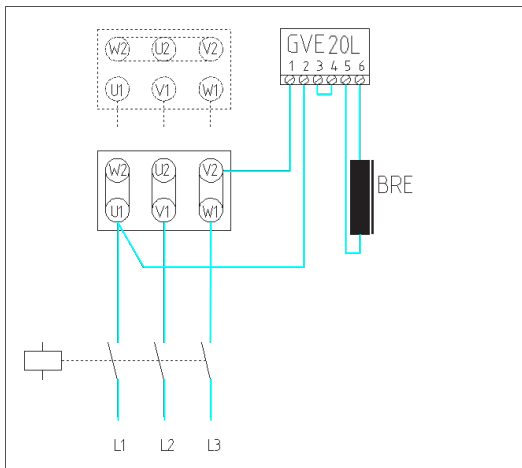
t_{tr} = Release time. The time from switching on the current until reduction of the braking torque to 10% of the nominal value.





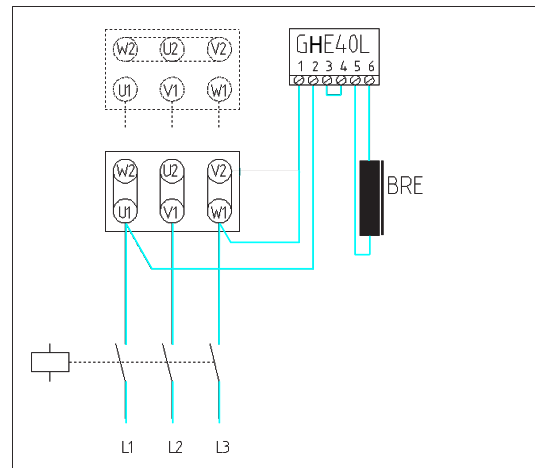
5. Motor Δ circuit: 230V_{AC} Δ
 Alternative Y - circuit: 400V_{AC}
 Bridge rectifier: GVE20L
 Supply via the motor terminals: 230V_{AC}
 Brake: 205V_{DC}
 Switch-off: AC

Brake applies very slowly!



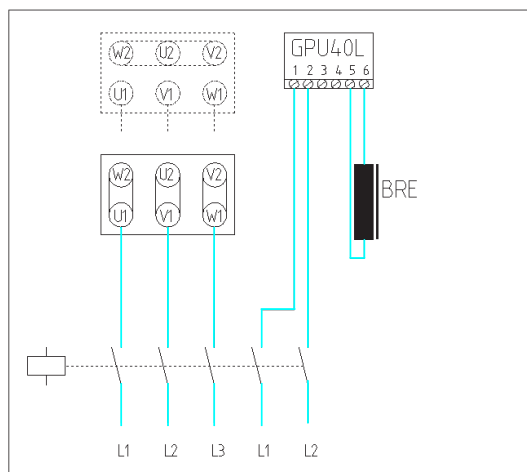
6. Motor Δ circuit: 400V_{AC}
 Alternative Y - circuit: 400V_{AC}
 Half-wave rectifier: GHE40L
 Supply via the motor terminals: 400V_{AC}
 Brake: 180V_{DC}
 Switch-off: AC

Brake applies very slowly!



7. Motor Δ circuit: 400V_{AC}
 Alternative Y - circuit: 400V_{AC}
 Quick-switching rectifier: GPU40L
 Brake: 180V_{DC}
 Separate supply: 400V_{AC}
 Switch-off: DC, internal

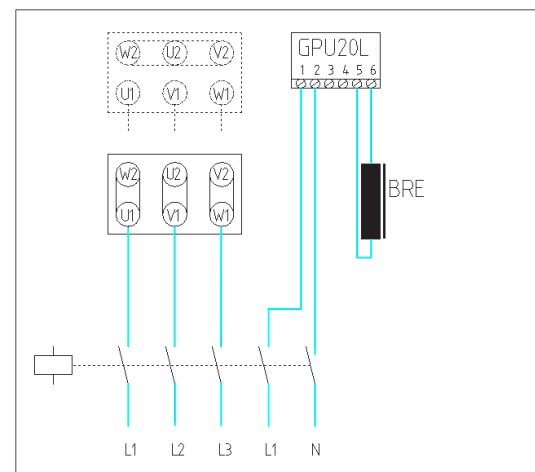
Switching variants for rapid release



Typical for FI operation

8. Motor Δ circuit: 400V_{AC}
 Alternative Y - circuit: 400V_{AC}
 Quick-switching rectifier: GPU20L
 Brake: 105V_{DC}
 Separate supply: 230V_{AC}
 Switch-off: DC, internal

Switching variants for rapid release



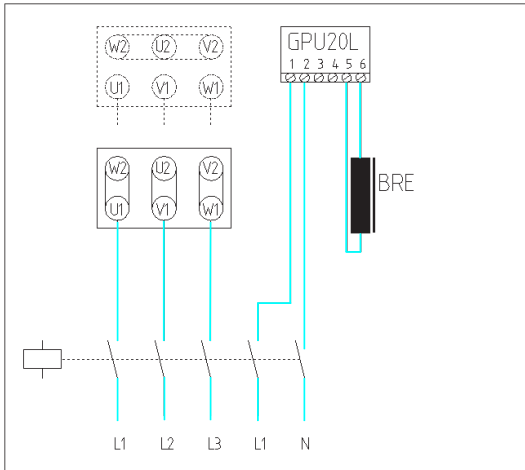
Typical for FI operation

Switching variants



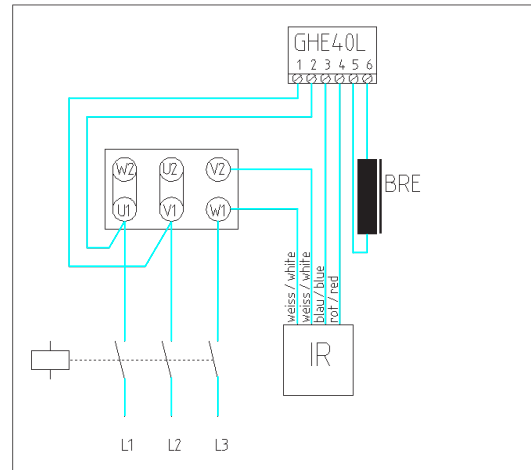
9. Motor Δ circuit: 400V_{AC}
 Alternative Y - circuit: 400V_{AC}
 Quick-switching rectifier: GPU20L
 Brake: 205V_{DC}
 Separate supply: 230V_{AC}
 Switch-off: DC, internal

Switching variant for rapid application



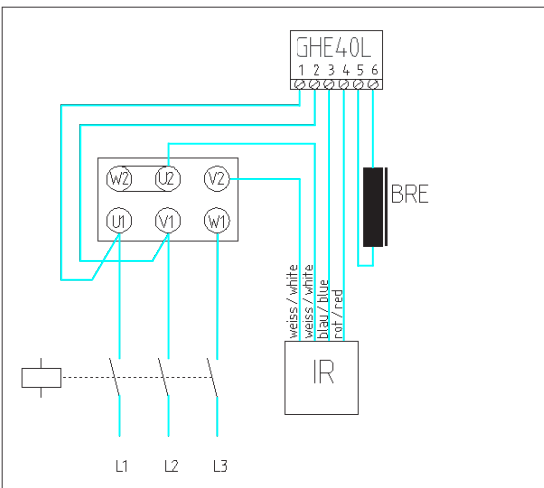
10. Motor Δ circuit: 400VAC
 Half-wave rectifier: GHE40L
 Brake: 180VDC
 Supply via the motor terminals: 400V_{AC}
 Switch-off: DC via current measuring relay

Switching variant for rapid application



11. Motor Y - circuit: 400V_{AC}
 Half-wave rectifier: GHE40L
 Brake: 180V_{DC}
 Supply via the motor terminals: 400V_{AC}
 Switch-off: DC via current measuring relay

Switching variant for rapid application



12. Motor Δ circuit: 400V_{AC}
 Quick-switching rectifier: GPE40L
 Brake: 180V_{DC}
 Supply via the motor terminals: 400V_{AC}
 Switch-off: DC via current measuring relay

Switching variants for rapid release and application

