Sullivan Palatek®

15 - 350 HP VFD

Variable Frequency Drive Rotary Screw Air Compressors

Features: More than a frequency inverter, it is a complete, Versatile Air System.

- Wide power range for 200V, 230V, 460V and 575V.
- Pressure transducer motor speed control, provided by pressure signal via our T1 microprocessor control.

- Programmable digital outputs available.
- Digital inputs from 2 pressure sensors, and a temperature sensor.
- 8 programmable parameter sets with S-curves, power off function, PID process controller, electronic motor protection and internal timer. Output frequencies up to 160 Hz with output voltage stabilization; switching frequencies up to 16 kHz; output phase monitoring.
- DC bus circuit connection and motor thermal sensor connection are provided.
- All new Platinum and Platinum-***Plus*** Warranties available.

"The Ultimate Performance Rotary Screw Air Compressor"

T1 VFD Microprocessor

Standard in all 15 - 350 HP Variable Frequency Drive Air Compressors

Sullivan-Palatek has the highest standard in air compressor control featuring the “T1” microprocessor on all Variable Frequency Drive (VFD) compressed air packages. The T1 has a customer friendly display with expanded descriptions of all the operating controls. It has RS485 communication between the T1 and the VFD and displays all pertinent VFD power consumption data at the T1 screen. It is the most comprehensive compressor control indicator on the market.

The T1 will control your specific compressed air needs as the system requires, and will conserve your power when the compressed air need is reduced.

T1 Microprocessor

Pressure schedule: program your daily operating schedule, and allows shut off during factory shut down up to 28 different times per week.

Built in sequencer: will trim up to 7 VFD or NON-VFD machines with microprocessor controls.

Dedicated pressure display always shown.

Configurable auxiliary display:
Eleven different choices: compressor status ~ differential pressure ~ drive fault ~ drive temperature ~ motor current ~ motor speed ~ percent capacity ~ power used ~ run or loaded hours ~ service time remaining ~ compressor operating temperature.

Unload pressure: Easily programmed to suit plant requirements.

Analog output:
Possible usages for:
Pressure or temperature on inline.
Temperature display on updrafts.

Dual function E-Stop for direct shutdown of VFD and T1

Proportional integral control at desired pressure allows tighter control of pressure without the need for add on line pressure flow controller devices.

RS485 communication between T1 and main VFD.
Secondary RS485 port for multiple machine functions and software updating.

Programmable Features
Auxiliary alarm on fault input.
Additional end user alarm or shutdown programmable for normally open or closed contact devices.

Digital output
Drain times
Exact set pressure
Load and unload pressures
Modbus address
Power failure auto restart
Shut down for excessive temperature or pressure
Stop run on time
Time for unloaded start

Today's controllers are much more powerful and versatile than prior models. The amazing T-1 Microprocessor is the brains behind our VFD compressors – which allows you to program your daily operation schedule and shut off during factory shutdown up to 28 different times per week!

The built in sequencer will control up to seven VFD or NON-VFD compressors with the VFD compressor as the trim machine! And you can configure the display with any one of twenty operational readings - while still showing the always-visible dedicated pressure display!

Main Motor VFD

The A1000 Drive is factory programmed and ready to run. Designed for tough industrial environments.
Performance Features:

- 150% overload for 1 minute heavy duty
- 150% starting torque@ 1HZ
- Adjustable acceleration/deceleration
- Stall prevention
- Selectable auto restart after momentary power loss.

VFD Fan Motor

Ensures optimum air flow for proper temperature control. Increased energy savings on fan motor during low RPM compressor operation. Safety shutdown feature is enabled when cooling fan power is interrupted.

All compressors are built with air cooled oil coolers and aftercoolers as standard, unless water cooled oil coolers and aftercoolers are requested.

Optional Equipment Choices for all Sullivan-Palatek compressors are available on on our website: www.sullivanpalatek.com

Shown with optional sound reducing enclosure

Cooling System, Up-draft Model

Cooling system with Independent V1000 Variable Frequency Drive. Large side-by-side oil cooler and aftercooler for easy cleaning.
Note:
15D-40D Inline Cooling, Horizontal
40UD-350UD Updraft Cooling, Vertical

Coupling & Drive

Compressor is flange mounted to motor C-face for positive alignment and direct driven.

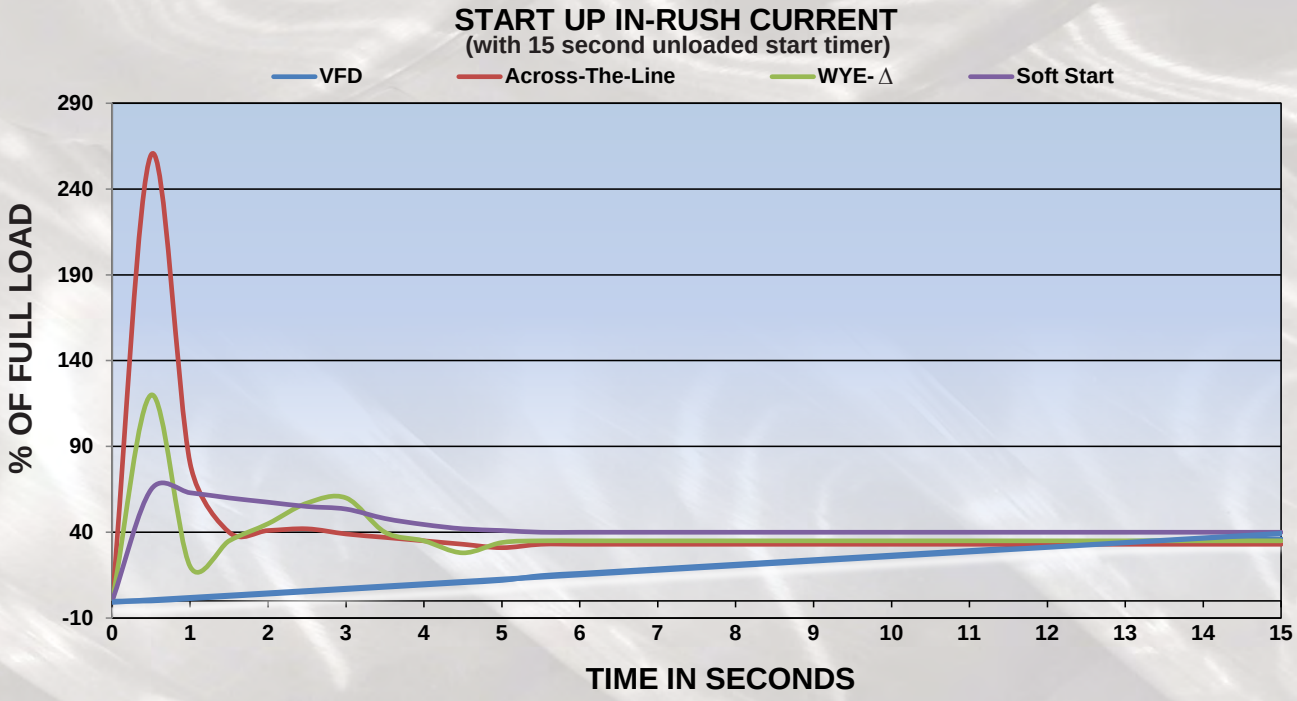
Shown with optional line reactor

Sequencer Operation Principles:
The VFD compressor serves as the “Lead” machine. It runs at the speed needed to supply the necessary air pressure, and calls on the other “Lag” compressors to run when required. If there is more than one Lag, the Lead will determine which one is next up, and how many are needed to supply the right amount of air to the plant. The Lead should be close to the same size or larger than the Lags so they don’t suddenly over-pressure the system. Normally the VFD maintains tight pressure control unless the air demand is low enough to reach the unload pressure. In this case it will maintain the pressure midway between the load and unload pressures. It attempts to maintain this, but will speed up or slow down to maintain this midpoint pressure, while adding or taking off Lags to maintain the desired pressure range. If it can’t keep up, it will call on the next Lag to help, and slow down to trim to the demand. When it has slowed to its minimum speed, it will send the Lag into unload and to off, and will speed up to maintain the pressure. If the demand drops to zero, the Lead will also sleep and go to a standby mode.

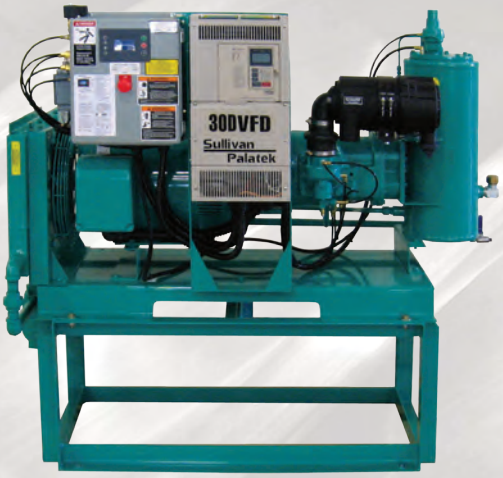
Practical Operation:
The specific operating pressure needed to allow correct plant operation needs to be determined. The VFD Lead should be set up so the needed pressure is midway between the load and unload settings. The Lags should have their modulation regulator set so there is minimal modulation. The whole system will operate as efficiently as a VFD will, and thus it should not modulate until it is at this pressure to unload pressure. The VFD Lead will do a good job of maintaining the needed pressure, and therefore, it does not need to be set higher than needed. The Lead has PI control functions in it which will help to stabilize the control in changing conditions. The Lead’s pressure schedule can also be used to totally shut down the system at certain times of the day or week, or to reduce the system pressure for those times of the day when less air (CFM) is needed for normal operation.

Save Money
Please note from the graph below that the VFD will not draw the in-rush current that other starters will require. This means that starting the VFD compressor will not incur the penalty payments charged by power companies for momentary very high current draw associated with other starting methods.

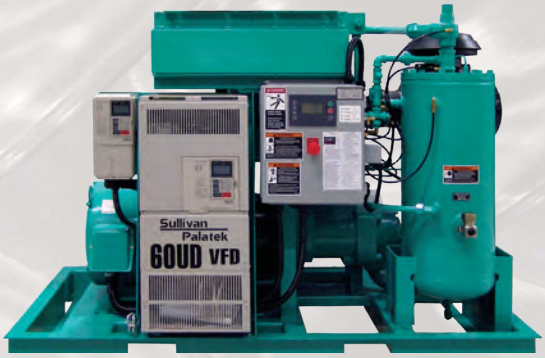
50HP VFD
Up-Draft Model
*(230 Volt)



20HP VFD Tank Mount
In-Line Model



30HP VFD Platform Mount
In-Line Model



60HP VFD Up-Draft Model

200HP VFD Enclosed Up-Draft Model

IN-LINE VFD COMPRESSOR MODELS

	Maximum CFM At Control Pressure				
Model By HP	100 Psig	125 Psig	150 Psig	Dimensions LxWxH (in) Enclosed (Open)	Weight Lbs. (Open)
15D	80	70	60	78x41x43 (56x38x37)	1400 (1100)
20D	100	85.5	75	78X41X43 (56X38X37)	1500 (1200)
25D4	115	105	95	78X41X43 (59X38X37)	1600 (1300)
30D7	140	130	120	78X41X43 (59X38X37)	1650 (1350)
40D	195	180	160	78X41X43 (60X38X37)	1700 (1400)

UP-DRAFT VFD COMPRESSOR MODELS

	Maximum CFM At Control Pressure				
Model By HP	100 Psig	125 Psig	150 Psig	Dimensions LxWxH (in) Enclosed (Open)	Weight Lbs. (Open)
40UD	195	180	160	80.25x36.75x80 (66x36.6x47.1)	1500 (1425)
*50UD	210	205	195	92.7x36.75x49. (79.2x34x47.1)*	1700 (1490)
50UDG	245	225	205	79X34X49 (66X34X47)	2000 (1700)
60UD	320	285	255	79X34X49 (66X34X37	2100 (1800)
75UDG	400	360	320	97.5X45X65 (97.5X45X57)	3200 (2900)
100UDG	485	425	385	97.5X45X65 (97.5X45X57)	3550 (3175)
125UDG	630	555	495	120X58X67 (120X58X66)	5000 (4500)
150UDG	820	720	660	114X58X67 (114X58X66)	5100 (5100)
200UDG	980	895	810	114X58X67 (114X58X66)	5200 (4700)
250UDG	1055	1030	935	114X58X67 (114X58X66)	5350 (4850)
300UD	1500	1325	N/A	120X66X79 (120X66X80)	7950 (7350)
350UD	1740	1500	1345	120X66X79 (120X66X80)	8000 (7500)

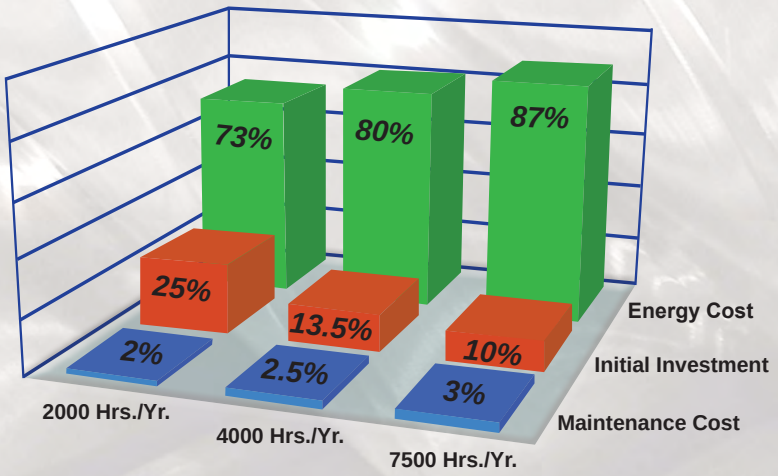
300 and 350 - The drive is in a stand alone cabinet 72”H X 48” W X 26” D and can be positioned within 36” of the compressor package.

Descriptions, specifications and pictures represented in this brochure may vary from actual equipment purchased.

* Based on dimension with 230 volts.

Based on 7500 Hours a Year, 87% of the Cost of Ownership for Your Compressor is ENERGY.

This chart is based on a power cost of 8 cents per Kwh. Depreciation cost is rated at 5 years at 8% interest.

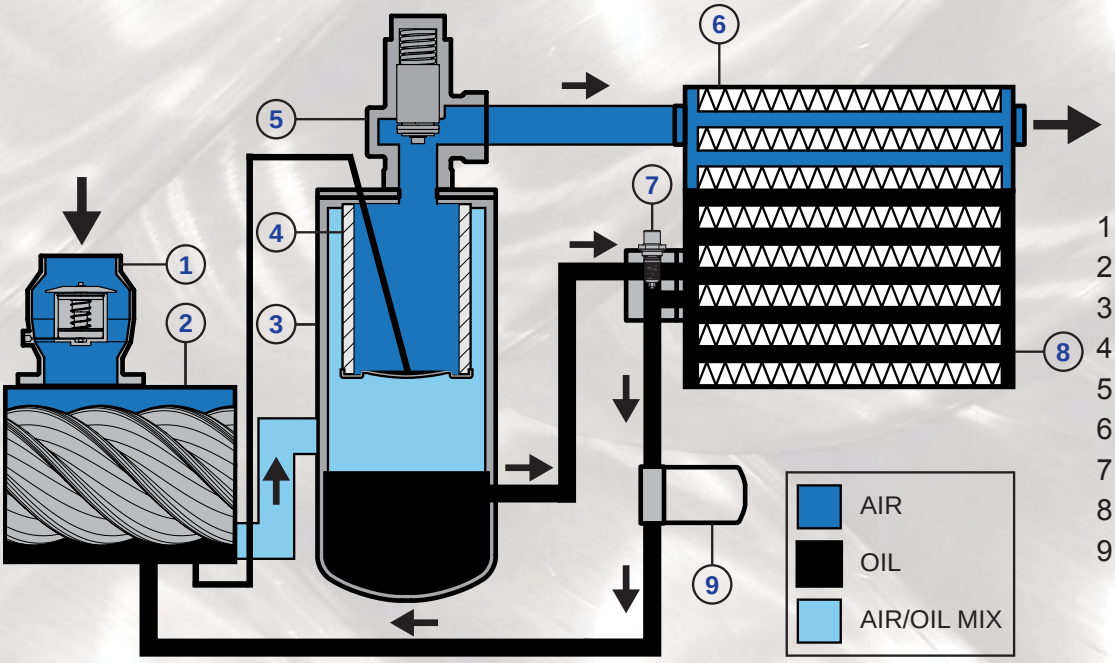


Business Tax Incentives

Advanced Energy Manufacturing Tax Credit ("MTC")

The American Recovery and Reinvestment Act of 2009: 1. ("Recovery Act") amended or added numerous energy tax incentives available to businesses, utilities, and government. Many of these incentives were previously modified by Emergency Economic Stabilization Act in 2008: 2. The majority of the incentives were originally passed into law under the Energy Policy Act of 2005 (EPACT): 3. The Recovery Act also provided additional tax incentives for consumers.
Source Information http://www.energy.gov/additionaltaxbreaks.htm

In addition to government tax incentives, some local utility companies also have rebate plans or incentives.



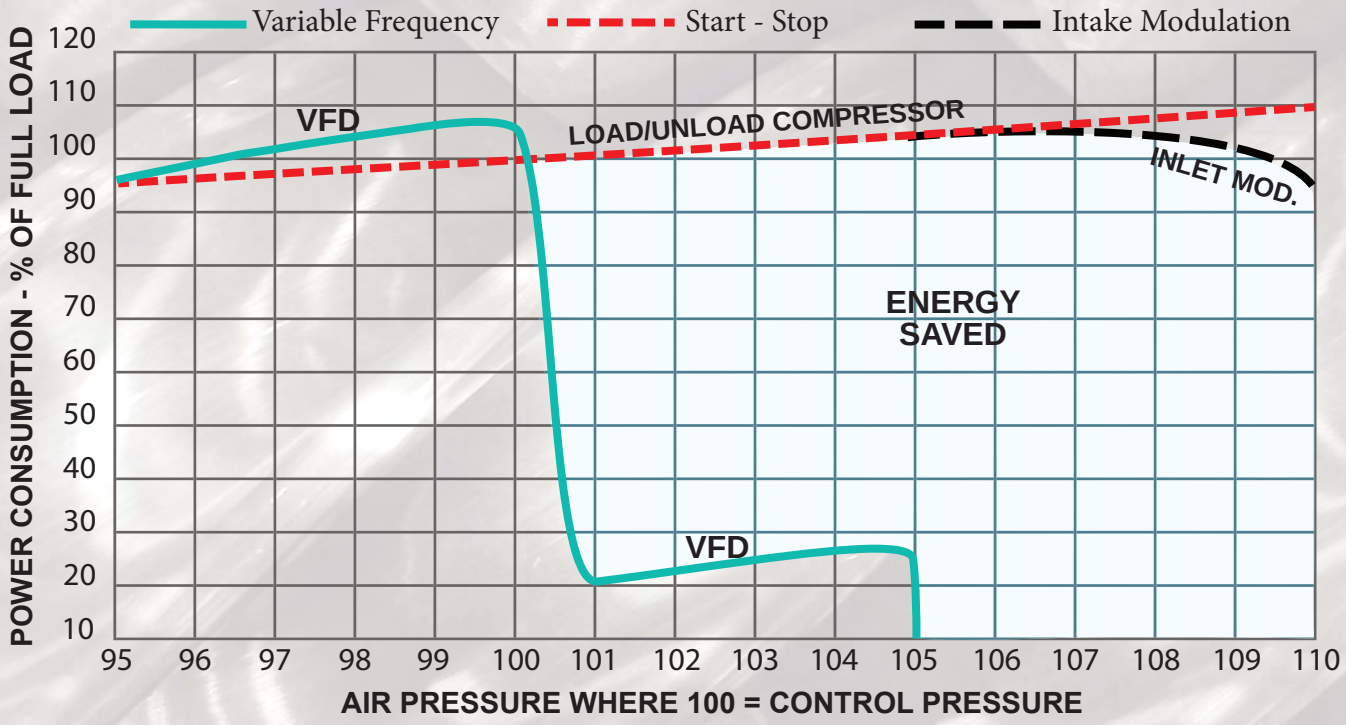
1. Inlet valve
2. Air end
3. Sump tank
4. Separator element
5. Minimum pressure valve
6. Aftercooler
7. Thermostatic valve
8. Oil cooler
9. Oil filter

Air is drawn through the air filter and inlet valve (1), into the air end (2). The air mixes with oil as the rotors in the air end (2) compress it. After compression, the oil and air mixture is discharged into the sump tank (3). Inside the sump tank (3), the bulk of the oil is separated from the air by change of direction and reduction of velocity. The air passes through a separator element (4) housed in the sump tank (3) to remove any remaining oil. When air pressure builds to 60 psi, the minimum pressure valve (5) opens and allows the separated air to enter the aftercooler (6). After being cooled, the air is delivered to the system for use.
Oil that was removed from the air by the separator element (4) collects in the bottom of the element. A scavenger line removes the oil collected in the bottom of the separator element, passes it through a sightglass (containing a screen and an orifice), and injects it directly into the air end.

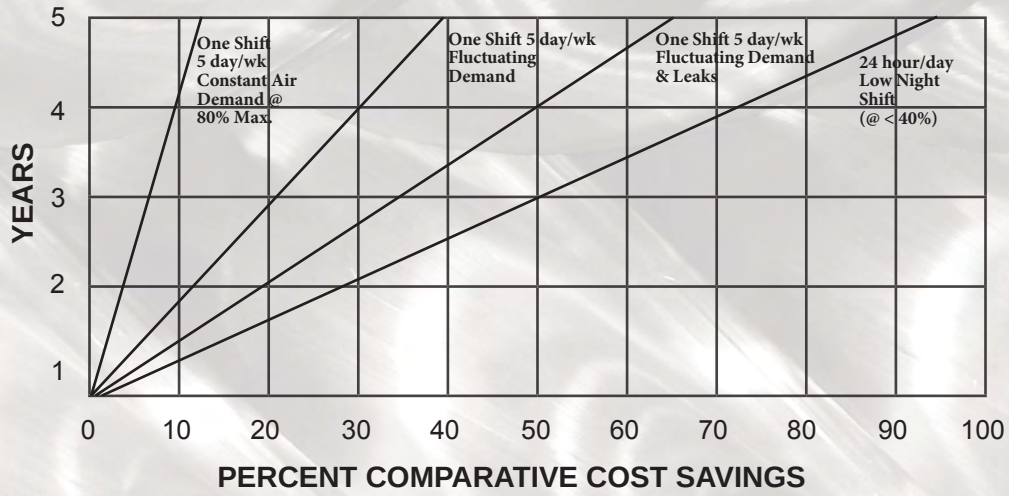
Operating Efficiency; VFD vs. Std Compressors

This Power Consumption Efficiency Curve Chart shows how the Variable Frequency Drive operates more efficiently than other controls in providing air delivery. The VFD helps reduce energy bills. Operating at 70% capacity, the VFD consumes 25% less power than a standard compressor operating with on-off control and 20 % less than a compressor with modulating control. The Variable Frequency Drive has a soft start feature that maintains a low starting current (see start-up chart on page 3). This reduces the stress on the site power supply and also reduces motor wear. The VFD system complies with the electromagnetic compatibility standard and is CSA listed. The VFD system is not limited to a fixed number of starts per hour.

POWER CONSUMPTION



OPERATING COST SAVINGS OVER TIME



The Cost Savings Chart illustrates the reduced operating cost of a VFD Unit by correcting poor air usage: Five day/week operation, erratic demand fluctuations (28% of installations), steady weekend consumption with leaks (64% of installations).This shows 24 hour operation with low night shift and high day shift consumption at more than 40% savings after 5 years. **In many instances the VFD Compressor will have a payback of the additional cost within 2 1/2 to 3 years.**

Sullivan Palatek

Electric Driven Industrial Air Compressors
5-10 HP Belt Driven
15-40 HP Direct Drive
40-400 HP Updraft
High and Low Pressure
Variable Frequency Drive Designs
Specialty Packaged Systems

Piston Air Compressors
Splash Lube
Pressure Lube
Gas Driven

Compressed Air Accessories
Refrigerated Air Dryers
Desiccant Air Dryers
Air Filters
Condensate Management Systems
Oil Free Systems
Air System Analysis
System Management Solutions

Diesel Driven Portable Air Compressors
185 cfm to 1800 cfm
John Deere, Caterpillar and Cummins Engines
3 year Air End Warranty
Utility Models
Offshore Models

High Pressure Portable and Skid
900/350 to 1150/350

Instrument Quality Air
375H to 1600H
Skid Mount Aftercoolers
Skid Mount Dryers and Aftercoolers
Construction Electric 50 to 400 HP
Electronic Parts Orders Through
SmartEquip™

Full Line of Pneumatic Tools
Hoses and Accessories

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