

# Guide to the Volatility Indices of Deutsche Börse

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## General Information

In order to ensure the highest quality of each of its indices, Deutsche Börse AG exercises the greatest care when compiling and calculating indices on the basis of the rules set out in this guideline.

However, Deutsche Börse AG cannot guarantee that the various indices, or the various ratios that are required for index compilation and computation purposes, as set out in this guideline, are always calculated free of errors. Deutsche Börse AG accepts no liability for any direct or indirect losses arising from any incorrect calculation of such indices or ratios.

Decisions concerning the way its indices are calculated are always taken by Deutsche Börse AG to the best of its knowledge and belief. Deutsche Börse AG shall not be liable for any losses arising from such decisions.

The indices of Deutsche Börse AG do not represent a recommendation for investment of whatever nature. In particular, the compilation and calculation of the various indices shall not be construed as a recommendation of Deutsche Börse AG to buy or sell individual securities, or the basket of securities underlying a given index.

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**History of Amendments to the Rules**

effective 03/12/2018	<ul style="list-style-type: none"><li>- Creation of Version 2.7:</li><li>- Removal of EURIBOR 2 and 9 month tenors</li><li>- Widening of conditions for increased maximum spreads from “Fast Market” to “Stresses Market” in Filtering of Data</li><li>- Change of maximum spreads in Filtering of Data</li></ul>
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## 1 Key Features

### 1.1 Concept

Volatility is a measure of the level of uncertainty prevailing in certain markets, or with respect to individual underlying instruments. In principle, there are two different approaches for the estimation of volatility: on the one hand, it is possible to determine historical volatility by measuring the standard deviation of prices for any particular security over a given period of time. On the other hand, volatility can be derived implicitly from option prices ('implied volatility'); this kind of volatility represents the estimates and assumptions of market participants involved in a trade, on the basis of a given option price.

Deutsche Börse calculates volatility indices that measure implied volatility using a model that has been jointly developed by Goldman Sachs and Deutsche Börse.

The VDAX-NEW<sup>®</sup> computes the square root of implied variance across at- & out-of-the-money DAX<sup>®</sup> options of a given time to expiration. This model offers great advantages in terms of creating, trading and hedging derivative products on this index. The main index (which is not linked to a specific maturity) has a fixed remaining time to expiration of 30 days. The VDAX-NEW<sup>®</sup> and its various sub-indices are also updated every minute.<sup>1</sup>

#### 1.1.1 Basis

The DAX<sup>®</sup> comprises the 30 largest and most liquid companies having their operating or registered headquarters in Germany or their primary trading venue<sup>2</sup> at the Frankfurt Stock Exchange (FWB<sup>®</sup>). Trading in shares of these companies accounts for more than 80 percent of Germany's exchange-traded equity volumes. Based on its real-time concept DAX<sup>®</sup> provides a comprehensive and up-to-date picture of the German stock market.

The options contract on this index is one of the most traded products of Eurex<sup>®</sup>, the international derivatives exchange, and ranks among the top index options contracts worldwide. The VDAX-NEW<sup>®</sup> is calculated on the basis of eight maturities with a maximum time to expiration of two years.

Volatility represents the key risk factor for the price determination in options trading. The higher the estimation of volatility, the higher the price of an option.

<sup>1</sup> DAX<sup>®</sup>, Eurex<sup>®</sup>, VDAX-NEW<sup>®</sup>, REX<sup>®</sup> and Xetra<sup>®</sup> are registered trademarks of Deutsche Börse AG.

<sup>2</sup> Operating headquarters is defined as the location of management or company administration, in part or in full. This must be publicly identified by the company. The primary trading venue requirement is met if at least 33 percent of aggregate turnover for each of the last three months took place on the Frankfurt Stock Exchange, including Xetra<sup>®</sup>.

### 1.1.2 Volatility Sub-Indices

Apart from the main index VDAX-NEW<sup>®</sup> (which is irrespective of a specific time to expiration), sub-indices for each maturity of the DAX<sup>®</sup> options ranging from one month up to two years are calculated and distributed for the VDAX-NEW<sup>®</sup> model. For options with a longer lifetime, no such sub-indices are currently available.

The various VDAX-NEW<sup>®</sup> sub-indices are calculated on the basis of a broad strip of options. The calculations are based on the best bid and best ask prices available for these options in the Eurex<sup>®</sup> system.

### 1.1.3 VDAX-NEW<sup>®</sup>

The main index is determined by way of interpolation using the two nearest sub-indices to the remaining time to expiration of 30 days (VDAX-NEW<sup>®</sup>). The main index is therefore calculated on a constant time to expiration. This helps to eliminate effects that typically result in strong volatility fluctuations close to expiration.

## 1.2 Selection of Input Data

During the calculation hours for the VDAX-NEW<sup>®</sup> and the sub-indices (9:15 a.m. to 5:30 p.m. CET), the following data is recorded every minute, using snapshots:

- DAX<sup>®</sup> - DAX Index, calculated on the basis of Xetra<sup>®</sup> prices
- ODAX<sup>®</sup> - Best bid, best ask, last trade and settlement price of all DAX options. Deutsche Börse will exclude from their indices all options as soon as their delisting becomes known (e.g. direct notification from the market, or unavailability of a settlement price).
- EONIA - Euro Overnight Index Average – overnight interest rate
- EURIBOR - Euro Interbank Offered Rates – money market reference rates (calculated once a day, 11:00 a.m. CET, by the European Banking Federation)
- REX<sup>®</sup> - Yield of the 2-year REX (calculated from exchange-traded prices) as the longer-term interest rate

Index name	Period	Code	ISIN
EONIA	1 day	EU1D	EU0009659945
EURIBOR 1 month	1 month	EU1M	EU0009659937
EURIBOR 3 months	3 months	EU3M	EU0009652783
EURIBOR 6 months	6 months	EU6M	EU0009652791
EURIBOR 12 months	12 months	EU12	EU0009652809
REX 2-YEAR (PRICE INDEX)	2 years	REX2	DE0008469149

### 1.3 Publication

VDAX-NEW<sup>®</sup> and the various volatility sub-indices are calculated on every Eurex<sup>®</sup> exchange trading day, during the period from 9:15 a.m. to 5:30 p.m. CET<sup>3</sup>.

The calculation of a sub-index does only commence as soon as all required input data is available. The precise scope of data that is actually required depends on the calculation model, and is therefore described in the chapter for calculation (VDAX-NEW<sup>®</sup>, cf. chapter 2).

The dissemination of the main index begins as soon as two sub-indices are available for an interpolation.

However, the VDAX-NEW<sup>®</sup> can start with data from the previous trading day (settlement prices) as long as no data from the current day is at hand.

In line with the expiration structure of DAX<sup>®</sup> options, each of the VDAX-NEW<sup>®</sup> sub-indices is assigned to a specific expiration, which can be directly identified from the respective code. There is a system of 120 codes and ISINs, of which are only eight in simultaneous use at any time (cf. chapter 3).

### 1.4 Historical Data

The following time series are available for the indices of Deutsche Börse:

#### 1.4.1 VDAX-NEW

Index	Code	ISIN	Daily closing prices since
VDAX-NEW	V1X	DE000A0DMX99	02 Jan. 1992
VDAX-NEW sub-index 1 (1 mth)	V1mj	cf. 3.1	02 Jan. 1992
VDAX-NEW sub-index 2 (2 mth)	V1mj	cf. 3.1	02 Jan. 1992
VDAX-NEW sub-index 3 (3 mth)	V1mj	cf. 3.1	02 Jan. 1992
VDAX-NEW sub-index 4 (6 mth)	V1mj	cf. 3.1	02 Jan. 1992
VDAX-NEW sub-index 5 (9 mth)	V1mj	cf. 3.1	02 Jan. 1992
VDAX-NEW sub-index 6 (12 mth)	V1mj	cf. 3.1	18 Mar. 1996
VDAX-NEW sub-index 7 (18 mth)	V1mj	cf. 3.1	18 Mar. 1996
VDAX-NEW sub-index 8 (24 mth)	V1mj	cf. 3.1	18 Mar. 1996

<sup>3</sup> VDAX-NEW<sup>®</sup> and the corresponding sub-indices have been calculated since 8:50 a.m. until 20 October 2006.

m represents the respective expiry month (A=Jan, ..., L=Dec); j represents the respective year (0, ..., 9)

The VDAX-NEW® and its various sub-indices have been calculated on a continuous basis with effect from 18 April 2005. Historical time series for the main index and the first five sub-indices, based on daily settlement prices, date back to 2 January 1992. Long-term DAX® options (with time to expirations of 12, 18 and 24 months) and the corresponding VDAX-NEW® sub-indices have only been available since 18 March 1996.

The REUTERS overnight rate, the 1- to 12-month LIBOR rates, and the yield of the 2-year REX® were used as interest rates.

Since the beginning of 1999, all available monthly EURIBOR rates as well as EONIA have been used in lieu of LIBOR and REUTERS overnight rates.

#### 1.4.2 VDAX-NEW® Fixed Identifier Sub-Indices

As of 23 October 2006 Deutsche Börse additionally calculates eight sub-indices with a fixed ISIN. Contrary to the sub-indices with variable ISIN classification specified in chapter 1.4.1 the ISIN in this procedure refers to the remaining time to expiration of the option. Over a period of time the options move into a sub-index with the adequate time to expiration (compare following table).

Index	Code	ISIN	Daily closing prices since
VDAX-NEW	V1X	DE000A0DMX99	02 Jan. 1992
VDAX-NEW sub-index 1 (1 mth)	V4F1	DE000A0G83V9	23 Oct. 2006
VDAX-NEW sub-index 2 (2 mth)	V4F2	DE000A0G83W7	23 Oct. 2006
VDAX-NEW sub-index 3 (3 mth)	V4F3	DE000A0G83X5	23 Oct. 2006
VDAX-NEW sub-index 4 (6 mth)	V4F4	DE000A0G83Y3	23 Oct. 2006
VDAX-NEW sub-index 5 (9 mth)	V4F5	DE000A0G83Z0	23 Oct. 2006
VDAX-NEW sub-index 6 (12 mth)	V4F6	DE000A0G8300	23 Oct. 2006
VDAX-NEW sub-index 7 (18 mth)	V4F7	DE000A0G8318	23 Oct. 2006
VDAX-NEW sub-index 8 (24 mth)	V4F8	DE000A0G8326	23 Oct. 2006



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## 1.5 Licensing

The indices of Deutsche Börse are registered trademarks of Deutsche Börse AG, and protected as such against any unauthorized use both in Germany and abroad. Exchanges, banks and investment companies may, however, apply to Deutsche Börse for licenses to use these indices as underlying instruments for derivative instruments. The standardized licensing agreement grants the licensee the right to use all indices for any number of instruments, with the license fee set according to the actual usage. Any inquiries regarding the licensing of indices should be directed to Deutsche Börse. Contact details are provided on the last page of this guide.

## 2 VDAX-NEW®

### 2.1 Calculation Method

The model for VDAX-NEW® aims at making pure volatility tradable – i.e. the index should be trackable by a portfolio which does not react to price fluctuations, but only to changes in volatility. This is not directly achieved through volatility, but rather through variances or squared volatilities. A portfolio of DAX® options with different exercise prices with a given weighting, as described below, meets this requirement. So, instead of using implied volatilities of the at-the-money options, implied variances of at-the-money as well as out-of-the-money options of a given time to expiration are considered.

The sub-indices are calculated according to the formula shown below:

$$(1) \text{VDAX - NEW}_i = 100 \cdot \sqrt{\sigma_i^2}$$

whereby:

$$(2) \sigma_i^2 = \frac{2}{T_i} \sum_j \frac{\Delta K_{i,j}}{K_{i,j}^2} \cdot R_i \cdot M(K_{i,j}) - \frac{1}{T_i} \left( \frac{F_i}{K_{i,0}} - 1 \right)^2, \quad i=1,2,..8$$

and:

$T_i$  = Time to expiration of the  $i^{\text{th}}$  ODAX®

$F_i$  = Forward price derived from the prices of the  $i^{\text{th}}$  ODAX, for which the absolute difference between call and put prices (C and P) is smallest. Therefore:

$$(3) F_i = K_{\min|C-P|} + R_i \cdot (C - P)$$

(Note: If a clear minimum does not exist, the average value of the relevant forward prices will be used instead.)

$K_{i,j}$  = Exercise price of the  $j^{\text{th}}$  out-of-the-money option of the  $i^{\text{th}}$  ODAX expiry month both in ascending order

$\Delta K_{i,j}$  = Interval between the relevant exercise prices or half the interval between the one higher and one lower exercise price. On the boundaries, the simple interval between the highest and second highest exercise price (or lowest and second lowest exercise price) is used:

$$(4) \Delta K_{i,j} = \frac{K_{i,j+1} - K_{i,j-1}}{2}$$

$K_{i,0}$  = Highest exercise price below forward price  $F_i$

$R_i$  = Refinancing factor of the  $i^{\text{th}}$  ODAX

$$(5) \quad R_i = e^{-r_i \cdot T_i}$$

$r_i$  = Risk-free interest rate to expiration of the  $i^{\text{th}}$  ODAX interpolated from corresponding EONIA/EURIBOR rates

$M(K_{i,j})$  = Price of the option  $K_{i,j}$ , whereby  $K_{i,j} \neq K_{i,0}$

$M(K_{i,0})$  = Average of the put and call prices at exercise price  $K_{i,0}$

The sub-indices are calculated up until two days prior to expiration. Each new sub-index is disseminated for the first time on the second trading day<sup>4</sup> of the relevant DAX options.

The individual steps with regard to data extraction and filtering are explained in the following chapters, sometimes with examples, as is the calculation process for the various factors used.

## 2.2 Extracting Data

During the calculation hours from 9:15 a.m. to 5:30 p.m. CET, the respective best bid and best ask prices of all DAX<sup>®</sup> options contracts listed on Eurex<sup>®</sup> along with the various interest rates mentioned under 1.2 are extracted from the stream of data generated by the Eurex system. To this end, a snapshot is taken at one minute intervals.

## 2.3 Filtering of Data

- a) Option price data is subject to filtering. All option prices that are one-sided – i.e. with either a bid or an ask price only – are disregarded. Naturally, the same applies to options without any price data.
- b) Another filter verifies whether the remaining options are quoted within the established maximum spreads for Eurex<sup>®</sup> market-makers. The maximum spread is derived from bid prices as shown in the table below:

Bid (index points)	Maximum Spread
0 – 25	2
25 – 300	8%
> 300	24

<sup>4</sup> Generally, the second trading day after the option series expiry day is a Tuesday (Exception: Bank holiday).

**Example:** Bid = 45.32 and ask = 54.3  
 Max. spread:  $45.32 \cdot 0.08 = 3.6256 \Rightarrow$  both prices (bid and ask) are rejected.

If Eurex® activates Stressed Market status, permitting market-makers to increase their quotation spreads under very turbulent trading conditions, maximum spreads are doubled accordingly. This is also taken into account for the calculation of the VDAX-NEW®, with the applicable filter criteria being adjusted accordingly.

## 2.4 Preparing Data

a) Determining the prices used

The mid price is calculated for filtered option prices, using the respective best bid and best ask.

The most recent of each of the following pieces of information is used subsequently:

- Settlement price (previous day)
- Mid price
- Last traded price

**Example (Call options):**

Underlying	Settlement	Bid (time)	Ask (time)	Mid (time)	Last-traded (time)	Price
4,000	383.30	--	--	--	--	383.30
4,050	333.40	--	--	--	383.5 (09:05)	383.50
4,100	283.50	287.1 (09:04)	290.0 (09:05)	288.55 (09:05)	--	288.55
4,150	233.70	237.2 (09:03)	240.2 (09:05)	239.70 (09:05)	237.2 (09:01)	239.70

b) Cutting the wings

Yet another filter ensures that the various prices used (settlement, mid and last traded price) do not fall short of a minimum value of 0.5 index points. If there are two or more options with different exercise prices and mid prices exactly equal the minimum value of 0.5 just the one nearest to the at-the-money point is taken into consideration. With this, options that are far out-of-the money and that do not have much influence on the result of the calculation are filtered out and do not need to be considered.

c) Determining the time to expiration  $T_i$

$$(6) T_i = T_{\text{Settlement-Calculation}} / T_{\text{Year}}$$

$T_{\text{Settlement-Calculation}}$  = Seconds between index calculation and settlement

$T_{\text{Year}}$  = Seconds per annum

**Example:** Index calculation: 25 November 2004 at 11:00 a.m. CET

Expiration ( $i = 1$ ): 17 December 2004 at 1:00 p.m. CET

$$T_1 = \frac{1,908,000}{365 \cdot 60 \cdot 60 \cdot 24} = 0.06050228 \text{ 31}$$

d) Determining risk-free interest rates

Linear interpolation is used to determine interest rates, the terms of which match the time to expiration of the ODAX®.

$$(7) r_i \equiv r(T_i) = \frac{T_{k+1} - T_i}{T_{k+1} - T_k} r(T_k) + \frac{T_i - T_k}{T_{k+1} - T_k} r(T_{k+1}); \quad T_k \leq T_i < T_{k+1}$$

**Example:**  $r(T_k) = 2.05\%$  (EONIA)

$r(T_{k+1}) = 2.18\%$  (EURIBOR, 1 month)

$r(T_i) = 2,14\%$

e) The refinancing factor  $R_i$  is determined according to equation (5)

**Example:**  $R_1 = e^{rt} = 1.001298$

## 2.5 Calculation Example

### 2.5.1 Determining the Forward Price $F_i$ and the Exercise Prices $K_{i,0}$

The forward price of the  $i^{\text{th}}$  expiry month is derived from ODAX® prices, for which the difference (in absolute terms) between call and put prices is smallest. The forward price  $F_1$  of the 1<sup>st</sup> expiry month is subject to the following:

$$F_i = K_{\min|C-P|} + R_i \cdot (\text{Call}_i - \text{Put}_i)$$

**Example:**  $R_1 = 1.001298$

$K_{\min|C-P|} = 4,150$

$F_1 = 4,151.401817$

Where there are several pairs of calls and puts with identical differences, a forward price will be calculated for each of the corresponding exercise prices.  $K_{i,0}$  is accordingly defined as the closest exercise price below the simple average of these forward prices.

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### 2.5.2 Determining the Option Price $M(K_{i,j})$

The price  $M(K_{i,j})$ , which is used for the  $j^{\text{th}}$  out-of-the-money option of the  $i^{\text{th}}$  expiry month, is determined as follows:

$$M(K_{i,j}) = \begin{cases} \text{Put} & : K_{i,j} < K_{i,0} \\ \frac{\text{Put} + \text{Call}}{2} & : K_{i,j} = K_{i,0} \\ \text{Call} & : K_{i,j} > K_{i,0} \end{cases}$$

### 2.5.3 Determining the Sub-Indices

$$\text{VDAX - NEW}_i = 100 \cdot \sqrt{\sigma_i^2}$$

$$\sigma_i^2 = \frac{2}{T_i} \sum_j \frac{\Delta K_{i,j}}{K_{i,j}^2} \cdot R_i \cdot M(K_{i,j}) - \frac{1}{T_i} \left( \frac{F_i}{K_{i,0}} - 1 \right)^2$$

Exercise Price $K_{i,j}$	$\Delta K_{i,j}$	Call	Put	Call - Put	$M(K_{i,j})$	$\frac{\Delta K_{i,j}}{K_{i,j}^2} R_i M(K_{i,j})$
3,350	50	793.90	0.30	793.60	0.30	
3,400	50	734.70	0.60	734.10	0.60	0.0000025985
3,450	50	684.80	0.80	684.00	0.80	0.0000033649
3,500	50	635.00	0.90	634.10	0.90	0.0000036782
3,550	50	585.30	1.10	584.20	1.10	0.0000043698
3,600	50	535.60	1.20	534.40	1.20	0.0000046355
3,650	50	486.00	1.70	484.30	1.70	0.0000063883
3,700	50	436.60	1.80	434.80	1.80	0.0000065825
3,750	50	387.40	2.90	384.50	2.90	0.0000103242
3,800	50	355.00	2.90	352.10	2.90	0.0000100543
3,850	50	290.10	5.50	284.60	5.50	0.0000185765
3,900	50	249.00	6.40	242.60	6.40	0.0000210656
3,950	50	202.90	10.50	192.40	10.50	0.0000336913
4,000	50	165.70	15.20	150.50	15.20	0.0000475605
4,050	50	120.50	24.80	95.70	24.80	0.0000756946
4,100	50	90.00	38.70	51.30	38.70	0.0001152567
4,150	50	59.00	57.60	1.40	58.30	0.0001694710
4,200	50	36.20	85.00	48.80	36.20	0.0001027385
4,250	50	20.30	130.00	109.70	20.30	0.0000562654
4,300	50	11.10	174.80	163.70	11.10	0.0000300545
4,350	50	6.00	212.75	206.75	6.00	0.0000158743
4,400	75	3.00	267.50	264.50	3.00	0.0000116367
4,500	100	1.20	365.60	364.40	1.20	0.0000059335
4,600	100	0.40	497.70	497.30	0.40	
					$\Sigma$	0.0007558154

$$\sigma_i^2 = 0.024984689 - 0.000001886 = 0.024986576$$

$$\text{VDAX - NEW}_1 = 100 \cdot \sqrt{0.024986576} = 15.8071$$

## 2.6 Constructing the Volatility Index

Apart from the sub-indices for the various individual time to expiration, the VDAX-NEW<sup>®</sup> is determined as the main index with a constant remaining time to expiration of 30 days (this index is not linked to a specific time to expiration). The VDAX-NEW<sup>®</sup> is determined by interpolation of the sub-indices which are nearest to a remaining time to expiration of 30 days. If there are no such surrounding sub-indices, the VDAX-NEW<sup>®</sup> is calculated using extrapolation. In this case, the two nearest available indices are used, which are as close to the time to expiration of 30 calendar days as possible.

$$\begin{aligned} \text{VDAX - NEW} &= 100 \cdot \sqrt{\left[ T_i \cdot \sigma_i^2 \cdot \left[ \frac{N_{T_{i+1}} - N_T}{N_{T_{i+1}} - N_{T_i}} \right] + T_{i+1} \cdot \sigma_{i+1}^2 \cdot \left[ \frac{N_T - N_{T_i}}{N_{T_{i+1}} - N_{T_i}} \right] \right]} \cdot \frac{N_{365}}{N_T} \\ &= \sqrt{\left[ T_i \cdot \text{VDAX - NEW}_i^2 \cdot \left[ \frac{N_{T_{i+1}} - N_T}{N_{T_{i+1}} - N_{T_i}} \right] + T_{i+1} \cdot \text{VDAX - NEW}_{i+1}^2 \cdot \left[ \frac{N_T - N_{T_i}}{N_{T_{i+1}} - N_{T_i}} \right] \right]} \cdot \frac{N_{365}}{N_T} \end{aligned}$$

$N_{T_i}$  = Time to expiration of the  $i^{\text{th}}$  ODAX

$N_{T_{i+1}}$  = Time to expiration of the  $i + 1^{\text{th}}$  ODAX

$N_T$  = Time for next x days

$N_{365}$  = Time for a standard year

## 2.7 Calculation of Settlement Index

VDAX-NEW<sup>®</sup> future settlement price is calculated 30 calendar days before the maturity date of the DAX<sup>®</sup> option. For this purpose, the equally weighted mean of all index values of VDAX-NEW<sup>®</sup> between 12:30 p.m. and 1:00 p.m. is determined.

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### 3 Appendix

#### 3.1 DAX-NEW® Master Data

V1	200(5)	200(6)	200(7)	200(8)	200(9)	201(0)	201(1)	201(2)	201(3)	201(4)
Jan (A)	DE000AADMZ22 V1A5	DE000AADM0E8 V1A6	DE000AADM0S8 V1A7	DE000AADM0A1 V1A8	DE000AADM1G1 V1A9	DE000AADM0YA7 V1A0	DE000AADM0YNO V1A1	DE000AADM0Y07 V1A2	DE000AADMZC0 V1A3	DE000AADMZQ0 V1A4
Feb (B)	DE000AADMZ30 V1B5	DE000AADM0F5 V1B6	DE000AADM0T6 V1B7	DE000AADM0S8 V1B8	DE000AADM1H9 V1B9	DE000AADM0YB5 V1B0	DE000AADM0YP5 V1B1	DE000AADM0Y15 V1B2	DE000AADMZD8 V1B3	DE000AADMZR8 V1B4
Mar (C)	DE000AADMZ48 V1C5	DE000AADM0G3 V1C6	DE000AADM0U4 V1C7	DE000AADM066 V1C8	DE000AADM1J5 V1C9	DE000AADM0YC3 V1C0	DE000AADM0YQ3 V1C1	DE000AADM0Y23 V1C2	DE000AADMZE6 V1C3	DE000AADMZS6 V1C4
Apr (D)	DE000AADMZ55 V1D5	DE000AADM0H1 V1D6	DE000AADM0V2 V1D7	DE000AADM074 V1D8	DE000AADM1K3 V1D9	DE000AADM0YD1 V1D0	DE000AADM0YR1 V1D1	DE000AADM0Y31 V1D2	DE000AADMZF3 V1D3	DE000AADMZT4 V1D4
May (E)	DE000AADMZ63 V1E5	DE000AADM0J7 V1E6	DE000AADM0W0 V1E7	DE000AADM082 V1E8	DE000AADM1L1 V1E9	DE000AADM0YE9 V1E0	DE000AADM0YS9 V1E1	DE000AADM0Y49 V1E2	DE000AADMZG1 V1E3	DE000AADMZU2 V1E4
Jun (F)	DE000AADMZ71 V1F5	DE000AADM0K5 V1F6	DE000AADM0X8 V1F7	DE000AADM090 V1F8	DE000AADM1M9 V1F9	DE000AADM0YF6 V1F0	DE000AADM0YT7 V1F1	DE000AADM0Y56 V1F2	DE000AADMZH9 V1F3	DE000AADMZV0 V1F4
Jul (G)	DE000AADMZ89 V1G5	DE000AADM0L3 V1G6	DE000AADM0Y6 V1G7	DE000AADM1A4 V1G8	DE000AADM1N7 V1G9	DE000AADM0YG4 V1G0	DE000AADM0YU5 V1G1	DE000AADM0Y64 V1G2	DE000AADMZJ5 V1G3	DE000AADMZW8 V1G4
Aug (H)	DE000AADMZ97 V1H5	DE000AADM0M1 V1H6	DE000AADM0Z3 V1H7	DE000AADM1B2 V1H8	DE000AADM1P2 V1H9	DE000AADM0YH2 V1H0	DE000AADM0YV3 V1H1	DE000AADM0Y72 V1H2	DE000AADMZK3 V1H3	DE000AADMZX6 V1H4
Sep (I)	DE000AADM0A6 V1I5	DE000AADM0N9 V1I6	DE000AADM009 V1I7	DE000AADM1C0 V1I8	DE000AADM1Q0 V1I9	DE000AADM0YJ8 V1I0	DE000AADM0YW1 V1I1	DE000AADM0Y80 V1I2	DE000AADMZL1 V1I3	DE000AADMZY4 V1I4
Oct (J)	DE000AADM0B4 V1J5	DE000AADM0P4 V1J6	DE000AADM0I7 V1J7	DE000AADM1D8 V1J8	DE000AADM1R8 V1J9	DE000AADM0YK6 V1J0	DE000AADM0YX9 V1J1	DE000AADM0Y98 V1J2	DE000AADMZM9 V1J3	DE000AADMZZ1 V1J4
Nov (K)	DE000AADM0C2 V1K5	DE000AADM0Q2 V1K6	DE000AADM025 V1K7	DE000AADM1E6 V1K8	DE000AADM1S6 V1K9	DE000AADM0YL4 V1K0	DE000AADM0YY7 V1K1	DE000AADMZA4 V1K2	DE000AADMZN7 V1K3	DE000AADMZO6 V1K4
Dec (L)	DE000AADM0D0 V1L5	DE000AADM0R0 V1L6	DE000AADM033 V1L7	DE000AADM1F3 V1L8	DE000AADM1T4 V1L9	DE000AADM0YM2 V1L0	DE000AADM0YZ4 V1L1	DE000AADMZB2 V1L2	DE000AADMZP2 V1L3	DE000AADMZ14 V1L4



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