

# Ninth District Mid-Cap Stock Index

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## Technical Notes

### Eligibility

- Only companies with official headquarters located in the Ninth District, as reported on their SEC filings, are included in the index.
- Publicly-traded companies with under \$5 billion capitalization are considered for addition to the index.
- Companies are removed from the index if their market cap exceeds \$10 billion or falls below \$100 million for at least three consecutive months.

### Methodology

The computation formula of the district midcap index was revised in April 2013 to closer approximate the [methodology](#) used by the benchmark S&P Midcap 400 index.

Conceptually, market capitalization based stock indices (these include S&P Midcap 400 and S&P 500) represent the total value of underlying companies, normalized to some chosen base year:

$$Index_t = \frac{\sum_i p_{it} q_{it}}{\sum_i p_{i0} q_{i0}} = \frac{\sum_i m_{it}}{\sum_i m_{i0}}$$

where  $m_{it}$  stands for the market cap of stock  $i$  at time  $t$ , and  $p$  and  $q$  stand for the stock price and number of shares outstanding, respectively. Therefore, the rate of change in such an index would be representative of the rate of change in the total value of companies included in the index and will be immune to purely accounting changes such as stock splits.

One advantage of this simplified formulation is that movements in the index can also be interpreted as the market-cap-weighted average of changes in the underlying stock prices:

$$\frac{Index_{t+1}}{Index_t} = \frac{\sum_i p_{it+1} q_{it+1}}{\sum_i p_{it} q_{it}} = \sum_i \frac{p_{it+1}}{p_{it}} \cdot \frac{p_{it} q_{it+1}}{\sum_i p_{it} q_{it}} = \sum_i \frac{p_{it+1}}{p_{it}} \cdot w_{it}$$

where  $w_{it}$  is the market cap weight of company  $i$ , keeping the number of shares fixed.

Maintenance of the index in practice is complicated by the fact that the composition of the portfolio may change. However, addition or deletion of stocks to the index should not change the level of the index, which is accomplished by maintaining a divisor series, similar to the S&P 400 [methodology](#).

## Example

Consider a simple example with three companies A, B and C with the following market valuations (market cap = price x number of shares outstanding):

	A	B	C	Total
Year $0$	\$1	\$2	\$3	\$6
Year $t$	\$2	\$3	\$4	\$9

In this example, the total value of companies in our portfolio was \$6 billion in year  $0$  and \$9 billion in year  $t$ . To keep the units manageable, indices report these values in terms of a chosen base year. With year  $0$  as base:

	Total market value	Index calculation	Index value
Year $0$	\$6 billion	$\$6 / \$6 \times 100$	100
Year $t$	\$9 billion	$\$9 / \$6 \times 100$	150

If the composition of the portfolio does not change, market cap data is sufficient to construct the index.

## Changes in October 2013

Hormel Foods Corporation was graduated from the index because its market capitalization exceeded \$10 billion threshold since Apr. 2013. Prior to its removal, Hormel accounted for 13 percent of the total market value of companies included in the index.

Four new companies have been added to the index. These include G&K Services Inc, Life Time Fitness Inc, Proto Labs Inc, and Tile Shop Holdings Inc, which with a combined market capitalization of \$7 billion account for 8 percent of the total market value of the updated index.

The new additions are all headquartered in Minnesota and are equally divided between services and industrial goods sectors.

## Changes in April 2013

Alliance Techsystems Inc., Fair Isaac Corporation, and Pentair Ltd. were removed from the index as these companies relocated their official headquarters outside the district. Fastenal Company was removed from the index because its market capitalization exceeded \$10 billion since Nov. 2011.

With a combined market capitalization of over \$29 billion, the dropped companies historically represented about 28 percent of total market value of the companies in the index.

Additions to the index include Buffalo Wild Wings Inc., Stratasys Ltd., Stillwater Mining Company, Raven Industries Inc., and National Presto Industries Inc., with a combined value of about \$8 billion or 10 percent of the new index. These companies expand the diversity of the index both in terms of industries represented, as well as its geographic coverage.

## List of companies

Symbol	Company name	Sector	Industry	Headquarters
ALE	Allete Inc.	Utilities	Diversified utilities	Duluth, MN
BKH	Black Hills Corp.	Utilities	Electric utilities	Rapid City, SD
BWLD	Buffalo Wild Wings, Inc.	Services	Restaurants	Minneapolis, MN
CHRW	C H Robinson Worldwide Inc.	Services	Air delivery & freight services	Eden Prairie, MN
DCI	Donaldson Company Inc.	Industrial Goods	Pollution & treatment controls	Minneapolis, MN
DLX	Deluxe Corp.	Services	Business services	Shoreview, MN
DRIV	Digital River Inc.	Technology	Internet software and services	Minnetonka, MN
FUL	HB Fuller Co.	Basic Materials	Specialty chemicals	St. Paul, MN
GBCI	Glacier Bancorp Inc.	Financial	Regional - pacific banks	Kalispell, Montana
GGG	Graco Inc.	Industrial Goods	Diversified machinery	Minneapolis, MN
GK	G&K Services Inc	Services	Personal services	Minnetonka, MN
IMN	Imation Corp.	Technology	Data storage devices	Oakdale, MN
LTM	Life Time Fitness Inc	Services	Sporting activities	Chanhassen, MN
MDU	MDU Resources Group Inc.	Utilities	Diversified utilities	Bismarck, ND
NPK	National Presto Industries, Inc.	Consumer Goods	Appliances	Eau Claire, WI
PDCO	Patterson Companies Inc.	Services	Medical equipment wholesale	St. Paul, MN
PII	Polaris Industries Inc.	Consumer Goods	Recreational vehicles	Medina, MN
PRLB	Proto Labs Inc	Industrial Goods	Machine tools & accessories	Maple Plain, MN
RAVN	Raven Industries, Inc.	Technology	Printed circuit boards	Sioux Falls, SD

RGS	Regis Corp	Services	Personal services	Edina, MN
SCSS	Select Comfort Corp	Consumer Goods	Home furnishings and fixtures	Minneapolis, MN
SSYS	Stratasys, Inc.	Technology	Computer based systems	Eden Prairie, MN
SVU	Supervalu Inc.	Services	Grocery stores	Eden Prairie, MN
SWC	Stillwater Mining Company	Basic Materials	Industrial metals & minerals	Billings, MT
TCB	TCF Financial Corporation	Financial	Money center banks	Wayzata, MN
TECH	Techne Corp	Healthcare	Medical appliances & equipment	Minneapolis, MN
TTC	The Toro Company	Industrial Goods	Small tools & accessories	Bloomington, MN
TTS	Tile Shop Holdings Inc	Industrial Goods	Manufactured housing	Plymouth, MN
VAL	The Valspar Corporation	Basic Materials	Specialty chemicals	Minneapolis, MN